UNITED STATES
SECURITIES AND EXCHANGE COMMISSION

Washington, D.C. 20549

FORM 10-K

(Mark One)

☒ **ANNUAL REPORT PURSUANT TO SECTION 13 OR 15(d) OF THE SECURITIES EXCHANGE ACT OF 1934**

For the fiscal year ended December 31, 2021

or

☐ **TRANSITION REPORT PURSUANT TO SECTION 13 OR 15(d) OF THE SECURITIES EXCHANGE ACT OF 1934**

For the transition period from to

Commission file number 000-50646

Ultra Clean Holdings, Inc.

(Exact name of Registrant as specified in its charter)

Delaware	**61-1430858**
(State or other jurisdiction of incorporation or organization)	**(IRS Employer Identification No.)**
26462 Corporate Avenue Hayward, California	**94545**
(Address of principal executive offices)	**(Zip Code)**

Registrant's telephone number, including area code:
(510) 576-4400

Securities registered pursuant to Section 12(b) of the Act:

Title of Each Class	**Name of Each Exchange on Which Registered**
Common Stock, $0.001 par value	**The NASDAQ Global Market LLC**

Securities registered pursuant to Section 12(g) of the Act:
None

Indicate by check mark if the registrant is a well-known seasoned issuer, as defined in Rule 405 of the Securities Act. Yes ☒ No ☐

Indicate by check mark if the registrant is not required to file reports pursuant to Section 13 or Section 15(d) of the Act. Yes ☐ No ☒

Indicate by check mark whether the registrant (1) has filed all reports required to be filed by Section 13 or 15(d) of the Securities Exchange Act of 1934 during the preceding 12 months (or for such shorter period that the registrant was required to file such reports), and (2) has been subject to such filing requirements for the past 90 days. Yes ☒ No ☐

Indicate by check mark whether the registrant has submitted electronically every Interactive Data File required to be submitted pursuant to Rule 405 of Regulation S-T (§ 232.405 of this chapter) during the preceding 12 months (or for such shorter period that the registrant was required to submit such files). Yes ☒ No ☐

Indicate by check mark whether the registrant is a large accelerated filer, an accelerated filer, a non-accelerated filer, a smaller reporting company, or an emerging growth company. See the definitions of "large accelerated filer," "accelerated filer," "smaller reporting company," and "emerging growth company" in Rule 12b-2 of the Exchange Act.:

Large accelerated filer	☒	Accelerated filer	☐
Non-accelerated filer	☐	Smaller reporting company	☐
		Emerging growth company	☐

If an emerging growth company, indicate by check mark if the registrant has elected not to use the extended transition period for complying with any new or revised financial accounting standards provided pursuant to Section 13(a) of the Exchange Act. ☐

Indicate by check mark whether the registrant has filed a report on and attestation to its management's assessment of the effectiveness of its internal control over financial reporting under Section 404(b) of the Sarbanes-Oxley Act (15 U.S.C. 7262(b)) by the registered public accounting firm that prepared or issued its audit report. ☒

Indicate by check mark whether the registrant is a shell company (as defined by Rule 12b-2 of the Act). Yes ☐ No ☒

The aggregate market value of the voting and non-voting stock held by non-affiliates of the Registrant, based on the closing sale price of the Registrant's common stock on June 25, 2021, as reported on the NASDAQ Global Market, was approximately $2,323.3 million. Shares of common stock held by each executive officer and director have been excluded from this computation. The determination of affiliate status for this purpose is not necessarily a conclusive determination for other purposes.

Number of shares of the registrant's common stock outstanding as of February 22, 2022: 44,949,955

DOCUMENTS INCORPORATED BY REFERENCE

Portions of the registrant's definitive proxy statement to be delivered to stockholders in connection with the 2022 annual meeting of stockholders are incorporated by reference in Part III of this Form 10-K where indicated. Such proxy statement will be filed with the Securities and Exchange Commission within 120 days of the registrant's fiscal year ended December 31, 2021.

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This Annual Report on Form 10-K contains forward-looking statements within the meaning of the Private Securities Litigation Reform Act of 1995. Words such as "expects," "anticipates," "targets," "goals," "projects," "intends," "plans," "believes," "seeks," "estimates," "continues," "may," "will be," "will continue," "will likely results," variations of such words, and similar expressions are intended to identify such forward-looking statements, but the absence of these words does not necessarily mean that a statement is not forward-looking. These forward-looking statements include, but are not limited to, statements concerning the following: projections of our financial performance, our anticipated growth and trends in our business, levels of capital expenditures, the adequacy of our capital resources to fund operations and growth, our ability to compete effectively with our competitors, our strategies and ability to protect our intellectual property, future acquisitions, customer demand, our manufacturing and procurement process, employee matters, supplier relations, foreign operations, the legal and regulatory backdrop (including environmental regulation), our exposure to market risks and other characterizations of future events or circumstances described in this Annual Report. Readers are cautioned that these forward-looking statements are only predictions and are subject to risks, uncertainties, and assumptions that are difficult to predict, including those identified below, under "Risk Factors," and elsewhere herein. Therefore, actual results may differ materially and adversely from those expressed in any forward-looking statements. We undertake no obligation to revise or update any forward-looking statements for any reason, except as required by law.

Item 1. Business

Overview

Ultra Clean Holdings, Inc., ("UCT", the "Company" or "We") is a leading developer and supplier of critical subsystems, components, parts, and ultra-high purity cleaning and analytical services primarily for the semiconductor industry. UCT offers its customers an integrated outsourced solution for major subassemblies, improved design-to-delivery cycle times, design for manufacturability, prototyping and part and component manufacturing, as well as tool chamber parts cleaning and coating, and micro-contamination analytical services. We report results for two operating segments: Products and Services (formerly known as "SPS" and "SSB", respectively). Our Products segment primarily designs, engineers and manufactures production tools, components and parts, and modules and subsystems for the semiconductor and display capital equipment markets. Products include chemical delivery modules, frame assemblies, gas delivery systems, fluid delivery systems, precision robotics, process modules as well as other high-level assemblies. Our Services segment provides ultra-high purity parts cleaning, process tool part recoating, surface encapsulation and high sensitivity micro contamination analysis primarily for the semiconductor device makers and wafer fabrication equipment ("WFE") markets.

We ship a majority of our products and provide most of our services to U.S. registered customers with locations both in and outside the U.S. In addition to U.S. manufacturing and service operations, we manufacture products and provide parts cleaning and other related services in our Asian, Europe and Middle East ("EMEA") facilities to support local and U.S. based customers. We conduct our operating activities primarily through our subsidiaries.

Over the long-term, we believe the semiconductor market we serve will continue to grow due to multi-year industry demand from a broad range of drivers including mobile demand driven by 5G, new CPU architectures that enable higher performance servers, necessary for cloud, artificial intelligence ("AI") and Machine Learning applications. We also believe that semiconductor original equipment manufacturers ("OEM") are increasingly relying on partners like UCT to fulfill their expanding capacity requirements. Additionally, our Services business is benefiting as device manufacturers rely on precision cleaning and coating to manufacture ever more complex devices.

On March 31, 2021, we completed the acquisition of Ham-Let (Israel-Canada) Ltd. ("Ham-Let" or "Fluid Solutions"), a public company organized under the laws of the State of Israel (not a U.S. registrant), pursuant to an Agreement and Plan of Merger, for approximately $362.9 million. Ham-Let engages in the development, manufacturing and marketing of innovative control valves, fittings, and hoses for the control and monitoring of industrial systems in a variety of markets, including the Semiconductor market. These products are primarily used in ultra clean gas delivery systems as well as other systems for the transmission of liquids and gases. The Company's primary reason for this acquisition was to broaden UCT's relevance to the semiconductor equipment market and to provide access to a new set of customers in the semiconductor fab infrastructure market.

During April 2021, we completed an underwritten public offering of 3.7 million shares of our common stock, for which we received net proceeds of $192.8 million, after deducting the underwriting discounts and offering expenses. We intend to use the net proceeds from this offering for general corporate purposes, which may include

working capital, sales and marketing activities, product development, general and administrative matters, and capital expenditures. We may use a portion of the net proceeds to acquire complementary businesses, products, services, or technologies, although we have no agreements, commitments, or plans for any specific acquisitions at this time.

Our international revenues represented 65.1%, 58.4% and 52.1% of total revenues for fiscal years ended 2021, 2020 and 2019, respectively. See Note 12 to the Notes to Consolidated Financial Statements for further information about our geographic areas.

Our Suite of Offerings

We are a leading developer and supplier of critical subsystems, parts, components and ultra-high purity cleaning and analytical services primarily for the semiconductor industry. We offer our customers an integrated outsourced solution for major subassemblies, improved design-to-delivery cycle times, design for manufacturability, prototyping and component manufacturing, tool chamber parts cleaning and coating and micro contamination analytical services. We offer our customers:

- *A vertically integrated solution for complex and highly configurable systems*. We provide our OEM customers a broad outsourced solution for the development, design, component sourcing and cleaning, prototyping, engineering, and manufacturing and testing of advanced systems. We utilize our weldment and frame fabrication capabilities with highly specialized engineering, global supply chain management, and assembly capabilities to produce high performance products that are customized to meet the needs of our customers and their customers. We enable our customers to minimize their overall number of suppliers, simplify their supply chain and reduce their inventories.
- *Parts and components.* We offer our customers a wide range of gas delivery solutions such as ultra-clean valves, high purity connectors, industrial process connectors and valves, pneumatic actuators, manifolds and safety solutions, hoses, pressure gauges, gas line and component heaters, as well as complex weldments. These products comply with the highest quality standards to ensure accelerated performance in a variety of demanding environments and applications in the semiconductor, oil and gas, chemical and refinery, power, transportation, analytical, and gas manufacturing markets. In March 2021, we expanded our suite of gas delivery offerings with the acquisition of Ham-Let.
- *Subsystem manufacturing*. Our experience with the demanding requirements in semiconductor equipment manufacturing has enabled us to become a leading developer and supplier of critical modules and subsystems. These assemblies include gas and fluid delivery solutions, wafer transport systems, mechatronic assemblies, and process modules.
- *Improved design-to-delivery cycle times*. Our strong customer relationships and familiarity with their product requirements and the ever-changing needs of their customer base help us reduce their design-to-delivery cycle times. We seek to optimize our supply chain management, design and manufacturing coordination and controls to respond rapidly to order requests, enabling us to decrease product design and customization cycle times for our customers. Because our engineers work closely with our customers' engineers and understand the fabrication, assembly and testing of their products, we often can improve their design for manufacturability, thereby reducing their cost and improving their, quality and consistency.
- *Testing capabilities*. We utilize our technical expertise to test and characterize key gas delivery products. We have made significant investments in advanced analytical and automated test equipment, enabling us to test and qualify key gas delivery sub-systems and components. We can perform diagnostic tests, design verifications and failure analyses for our customers and suppliers.
- *Increased integration with OEMs through local presence*. Our local presence in close proximity to the facilities of most of our OEM customers enables us to remain closely integrated with their design, development and implementation teams. This level of integration enables us to respond quickly and efficiently to customer changes and requests.
- *Precision fabrication*. We design and manufacture weldments and frames with exacting standards to meet or exceed our customers' needs. UCT has over 30 years of experience in the fabrication of complex gas delivery systems which enables us to provide cost competitiveness in our vertical integration model. In 2019, we expanded our weldment capabilities via the acquisition of Dynamic Manufacturing Solutions, LLC ("DMS").

- *Custom thermal control*. We design and manufacture heaters, sensors, and controllers for precise temperature control. These products are complementary to our gas delivery systems products.
- *Parts cleaning and coating and analytical verification*: Through our Services business, we offer integrated device manufacturers ("IDM") customers validated, ultra-high purity process tool chamber parts cleaning and coating services. Included in these services are tool part process optimization solutions that could lower the total cost of ownership for our customers. We also offer analytical verification of process tool chamber part cleaning effectiveness and micro contamination analysis of tool parts, wafers and depositions, chemicals, cleanroom materials, deionized water and airborne molecular contamination.

Our Strategy

Our strategy is to grow our position and increase our value to our customers as a leading solutions and service provider in the semiconductor markets we serve, while serving a limited number of other technologically similar market opportunities. Our strategy is comprised of the following key elements:

- *Expand our solutions and service market share with semiconductor OEMs and IDMs*. We believe that equipment outsourcing among OEMs creates a significant market opportunity for us to grow our business with existing and new customers. We believe our customers will continue to outsource critical subsystems and that we are well positioned to capture a significant portion of these outsourcing opportunities. We believe that our continued focus on efficient manufacturing, reduced design-to-delivery cycle times, and high quality and reliability will also allow us to gain market share. Similarly, we believe there is room to gain market share with our Services offerings, both with IDMs and OEMs, as customers typically outsource these solutions. By providing customers process improvement through consistently cleaner parts and analytical verification of process tool chamber part cleaning effectiveness, we have expanded our total available market significantly.
- *Develop or acquire solutions that allow our customers to succeed at the leading edge of the* semiconductor *processing nodes*. We continue to expand the number and type of subsystems and services that we offer in the rapidly advancing semiconductor market.
- *Leverage our geographic presence in lower-cost manufacturing regions*. The diverse footprint of our manufacturing facilities allows us to provide cost competitive solutions. These facilities house subsystem assembly, weldment and thermal control heater operations and are near the manufacturing facilities of existing and potential customers and their end users. In Singapore, we have a procurement office and substantial manufacturing capabilities. Our manufacturing facilities all use similar processes and procedures, enabling us to respond rapidly to demand changes from our customer. UCT expanded its global footprint into Penang, Malaysia and initial production began in December 2021. Several of UCT's cleaning and analytic facilities are also in low-cost regions, strategically close to our customers, adding to our competitive advantage.
- *Provide production flexibility to respond rapidly to demand changes.* Our manufacturing facilities all use similar processes and procedures enabling us to easily shift production between sites to support expanded demand and ensure business continuity.
- *Drive profitable growth with our flexible cost structure*. We implement cost containment and capacity enhancement initiatives throughout the semiconductor demand cycle and benefit from the global presence and efficiencies of our supply chain. In addition, we believe our overseas facilities position us to respond effectively to future business demands. We employ a core engineering strategy with flexible partnering to augment our staff during the steep rise and fall often associated with cycles in the semiconductor industry.
- *Continue to selectively pursue strategic acquisitions*. We will continue to consider strategic acquisitions that will enable us to improve our financial model, expand our geographic presence, secure new customers and diversify into complementary products and services markets as well as broaden our technological and cleaning and analytical capabilities in the markets we serve. As an outgrowth of this strategy, in March 2021, we acquired Ham-Let, an Israeli company that supplies components to the semiconductor and other industries, for approximately $362.9 million
- *Strengthen vertical integration*. We continue to invest in our operations to meet customer quality and delivery targets. We have expanded welding operations at several of our manufacturing sites, added parts and components business through the acquisition of Ham-Let, developed/built in-house powder coating capability, and purchased new manufacturing tools. In addition to organic growth, we continue to manage/foster key strategic partnerships to efficiently meet production needs.

Products

We design, develop, prototype, manufacture and test subsystems, primarily for the semiconductor equipment market. Our products include precision robotic solutions, gas delivery systems, a variety of industrial and automation production equipment products, and subsystems that include wafer cleaning modules, chemical delivery modules, top-plate assemblies, frame assemblies, and process modules. We also offer a wide range of parts and components such as ultra-clean valves, high purity connectors, industrial process connectors and valves, pneumatic actuators, manifolds and safety solutions, hoses, gas delivery systems, and pressure gauges.

- *Parts and components.* Includes ultra-clean valves, high purity connectors, industrial process connectors and valves, pneumatic actuators, manifolds and safety solutions, hoses, pressure gauges, gas line and component heaters, as well as complex weldments. These products comply with the highest quality standards to ensure accelerated performance in a variety of demanding environments and applications in the semiconductor, oil and gas, chemical and refinery, power, transportation, analytical, and gas manufacturing markets.
- *Chemical delivery modules*: Chemical delivery modules deliver gases and reactive chemicals in a liquid or gaseous form from a centralized subsystem to the reaction chamber. The module may be a gas delivery system in combination with liquid and vapor precursor delivery systems or may be a liquid delivery system in combination with a liquid storage system.
- *Gas delivery systems:* A typical OEM gas delivery system consists of one or more gas lines, comprised of weldments, filters, mass flow controllers, regulators, pressure transducers and valves, component heaters, and an integrated electronic and/or pneumatic control system. These systems are typically pallet mounted and are enclosed in a sheet metal encasing. Our gas delivery system designs are developed in collaboration with our customers and are customized to meet the needs of specific processing requirements for OEMs. While several customers specify the full system bill of materials, many leverage our design expertise to help them select the appropriate components for their particular system.
- *Fluid delivery system:* A typical OEM liquid delivery system consists of one or more chemical delivery units, comprised of small diameter high purity PFA tubing, filters, flow controllers, regulators, component heaters, and an integrated electronic and/or pneumatic control system. These units are typically contained in a plastic enclosure and further integrated into a frame. Our liquid delivery system designs are developed in collaboration with our customers and are customized to meet the needs of specific processing requirements for OEMs. Although several customers specify the full system bill of materials, many rely on our design expertise and component characterization capabilities to help them select the appropriate components for their particular system.
- *Precision robotics:* Precision robotic systems are used when accurate controlled motion is required. Some of the systems that employ robotic systems are semiconductor wafer and chip handling, wire bonding and industrial equipment.
- *Process modules:* Process modules refer to the larger subsystems of semiconductor manufacturing tools that process integrated circuits onto wafers. Process modules include several smaller subsystems such as the frame assembly, top-plate assembly and gas and chemical delivery modules, as well as the chamber and electronic, pneumatic and mechanical subsystems.
- *Other high-level assemblies:* Other high-level assemblies refer to large subsystems used in semiconductor manufacturing, display, medical, energy, industrial and research industries.

Services

Our services business includes ultra-high purity process tool chamber parts cleaning and coating services, tool part life extension and process tool part optimization solutions, and micro-contamination analytical testing, primarily for the semiconductor device manufacturers and wafer fabrication equipment markets.

- *Parts cleaning and coating*: UCT offers customers validated, ultra-high purity outsourced process tool chamber parts cleaning and coating services. Included in these services are tool part process optimization solutions that can lower the total cost of ownership for our customers.
- *Micro-contamination analysis*: UCT also offers micro-contamination analysis of tool parts, wafers and depositions, chemicals, cleanroom materials, deionized water and airborne molecular contamination and provides analytical verification of process tool chamber part cleaning effectiveness.

Customers

We sell our products and services primarily to customers in the semiconductor capital equipment and semiconductor integrated device manufacturing industries, and we also sell to the display, consumer, medical, energy, industrial, and research equipment industries.

The majority of our total revenues comes from the semiconductor capital equipment industry (OEM customers), which is highly concentrated, so we are therefore highly dependent upon a small number of customers. Our two largest revenue customers in fiscal years 2021, 2020 and 2019 were Applied Materials, Inc. and Lam Research Corporation, each of which accounted for more than 10.0% of our total revenues in fiscal years 2021, 2020 and 2019. As a group, our respective year's top two customers accounted for 64.0%, 67.1% and 66.9% of the Company's revenues for fiscal years 2021, 2020 and 2019, respectively.

Approximately 91.0% of our total revenues for the fiscal year 2021 came from multiple segments of the semiconductor industry, which include IDM, Foundry, OEM, and sub-tier suppliers.

We have successfully been qualified as a supplier of equipment, cleaning, coating and analytical services with each of our customers who require such qualifications. This lengthy qualification process typically involves the inspection and audit of our facilities and evaluation by our customers of our engineering, documentation, manufacturing and quality control processes and procedures. Our customers generally place orders with suppliers who have met and continue to meet their qualification criteria.

Customer Business Management

We sell and support our products and services through our Customer Business Management organization. Our customer relationship directors are responsible for establishing sales strategy and setting the objectives for specific customer accounts. Each customer relationship manager is dedicated to a specific customer account and is responsible for maintaining strong working relationships with that customer, and in many cases provide on-site support. OEM Customer relationship managers often attend customers' internal meetings related to production and engineering design and quality to ensure that customer expectations are interpreted and communicated properly to our operations group. Customer relationship managers also work with our customers to identify and meet their cost and design-to-delivery cycle time objectives. Our IDM Customer relationship managers work with process tool owners and Fab maintenance managers relating to the development and validation of cleaning recipes, addressing new tools cleaning and analytical requirements, and optimizing cleaning processes and analytical testing requirements to support node transitions.

We have dedicated new business development managers for both our product and service businesses. Our new business development managers initiate and develop long-term, multilevel customer relationships and work closely with them on new business opportunities. Our customer relationship organization includes technical sales support for order placement, spare parts quotes, production status updates as well as service and maintenance contracts and analysis business. We have a technical relationship representative located at most of our facilities.

We integrate new business wins into our facilities via a rigorous product transition process, working in concert with our customers to ensure all production, cleaning and/or test requirements are identified, documented, and validated. We employ the same process at all our sites, enabling products and service offerings to smoothly transition into and between our sites as needed to support customer demand.

In addition, we have developed an overall service and support infrastructure to provide our customers with service and support 24 hours a day, seven days a week. Our dedicated global field service engineers provide customer support through the performance of on-site installation, servicing and repair.

Technology Development

We engage in ongoing technology development efforts to remain a leader for gas delivery systems and to further develop our expertise in other critical subsystems. We work closely with our customers to identify and anticipate changes and trends in next-generation equipment. We participate in customer technology partnership programs that focus on process application requirements for gas and liquid delivery systems and other critical subsystems. These

development efforts are designed to meet specific customer requirements in the areas of subsystem design, materials, component selection and functionality. Our technology development group also works directly with our suppliers to help them identify new component technologies and make necessary changes in, and enhancements to, the components that we integrate into our products. Our analytical and testing capabilities enable us to evaluate multiple supplier component technologies and provide our customers with a wide range of appropriate component and design choices for their gas delivery systems and other critical subsystems.

Our analytical and testing capabilities also help us anticipate technological changes and requirements in component features for our core next-generation gas delivery systems and other critical subsystems. We are continuously developing additional features to improve the performance and functionality of these subsystems. Our technology development activities for next-generation gas delivery and other critical subsystems are performed in Hayward, CA and Israel.

We also engage in ongoing technology development to maintain technological leadership in the cleaning, coating and analytical markets. Our Services business works closely with customers to identify and anticipate changes that will be required in next-generation equipment. UCT's technical capability is becoming extremely critical and differentiated to ensure high wafer yields and throughput as geometries shrink and density increases. Our Services business development activities are performed primarily in Hillsboro, OR, Phoenix, AZ, Israel and South Korea.

Intellectual Property

Our success depends in part on our ability to maintain and protect our proprietary technology and to conduct our business without infringing the proprietary rights of others. Both our products and services businesses largely depend upon our design, engineering, manufacturing, testing, cleaning, coating and analytical know-how. We also rely on a combination of trade secrets and confidentiality provisions, and to a much lesser extent, patents, copyrights and trademarks, to protect our proprietary rights. We have 131 patents with various expiration dates and intellectual property that we develop on behalf of our customers is generally owned exclusively by those customers.

We require our employees, suppliers, customers and potential business partners to enter into confidentiality and non-disclosure agreements before we disclose to them any sensitive or proprietary information regarding our products, technology or business plans. We require employees to assign to us proprietary information, inventions and other intellectual property they create, modify or improve.

Competition

Our industry is highly fragmented. When we compete for new business, we face competition from other suppliers of gas delivery systems, critical subsystems, parts and components, cleaning and analytical services, as well as the internal manufacturing and services groups of our customers. Customers that have elected to outsource their gas delivery systems and other critical subsystems including cleaning and analytics, could elect in the future to develop and manufacture these subsystems internally, leading to further competition.

Our principal competitor for gas delivery systems is Ichor Systems, Inc., and our principal competitors for other critical subsystems are Flex Ltd., Foxsemicon Integrated Technology Inc., Jabil, Inc., Sanmina Corporation, Fujikin Incorporated, VDL ETG and Celestica Inc. For our gas delivery component solutions our principal competitors are Swagelok, Parker Hannifin, and Watlow. For our services, cleaning and coating offerings, our main competitors in the US are Pentagon Technologies and Cleanpart, and in South Korea, KoMiCo. For analytical services our primary competitors are Balazs (an Air Liquide company) and Cerium Labs. Some of these competitors have substantially greater financial, technical, manufacturing and marketing resources than we do. We expect our competitors to continue to improve the performance of their current products and to introduce new products or new technologies that could adversely affect sales of our current and future products.

The limited number of potential customers in our industry further intensifies competition. The primary competitive factors in our industry are quality, meeting customer timeline demands, price, technology, design-to-delivery cycle time, customer qualification approvals, the development of product recipes for cleaning and analytics and historical customer relationships. We anticipate that increased competitive pressures will cause intensified price-based competition and we may have to reduce the prices of our products. In addition, we expect to face new competitors as we enter new markets.

Governmental Regulation and Environmental Matters

Our operations are subject to federal, state and local regulatory requirements and foreign laws relating to environmental, waste management and health and safety matters, including measures relating to the release, use, storage, treatment, transportation, discharge, disposal and remediation of contaminants, hazardous substances and waste, as well as practices and procedures applicable to the construction and operation of our UCT facilities.

In 2020, UCT committed to a program titled "SuCCESS2030" designed to enhance the Company's sustainability vision through its supply chain. UCT will endeavor to identify and coordinate efforts and develop capabilities to ensure its suppliers operate in an ethical, responsible, and sustainable manner. The goal is to build a responsible and sustainable end-to-end supply chain for the future of semiconductors.

UCT participates in the Responsible Business Alliance's Responsible Minerals Assurance Process for Tantalum. Our cleaning processes for tantalum-deposited parts recovers the tantalum, enabling it to re-enter the commodity market and reduce the demand for mined material, the majority of which originates from the Conflict Region in Africa.

Although cleaning is a chemical-intensive business, UCT, where possible, utilizes chemical-free processing to remove significant volumes of deposited material. Reduction in the volume of film being chemically removed reduces the amount of chemicals used to meet the target cleanliness specifications.

The semiconductor industry has stringent packaging requirements which include the need to maintain the cleanliness of a part/system while providing structural support of heavy modules. These requirements may necessitate the design and fabrication of product-specific crates or the use of plastic cleanroom boxes. To minimize packaging waste UCT has implemented re-use programs for these type of materials with our customers and suppliers.

Our past or future operations may result in injury or claims of injury by employees or the public which may result in material costs and liabilities to us. Although some risk of costs and liabilities related to these matters is inherent in our business, we believe that our business is in compliance with applicable US and international regulations and laws. However, new, modified or more stringent requirements or enforcement policies could be adopted by governmental agencies, which could affect us.

Employees and Human Capital

As of December 31, 2021, we had 7,066 employees, of which 1,206 were temporary. Of our total employees, there were 120 in engineering, 21 in technology development, 335 in sales and support, 4,529 in direct manufacturing, 1,395 in indirect manufacturing and 491 in administrative and executive functions. These figures include 3,137 employees in Asia and 1,537 employees in EMEA. None of our employees are represented by a labor union and we have not experienced any work stoppages.

UCT believes that its employees are its most important assets. The Company has a long history of embracing diversity, multiculturalism and belonging and is reinforcing a culture of inclusion by committing to even greater transparency, clearer targets and comprehensive training to improve diversity and inclusion within the company to ensure every employee is treated with dignity and respect. The ultimate goal is to foster an atmosphere of acceptance, inclusion, trust and of mutual respect for all. To reach that goal, UCT provides mandatory practical and continuous education to all employees on behavioral expectations.

We believe that UCT's success depends on our ability to attract, develop and retain key personnel. We believe that the skills, experience and industry knowledge of our key employees significantly benefit our operations and performance. The Company strives to provide fair and equal opportunity for career development and advancement to all its employees. UCT offers competitive rewards, compensation and benefits, including an Employee Stock Purchase Plan, healthcare and retirement benefits, parental and family leave, adoption credits, holiday and paid time off, and tuition assistance. Ensuring employee health and safety in the workplace is one of our core values. The COVID-19 pandemic has further reinforced the importance of keeping our employees safe and healthy. In response to the pandemic, we have taken actions aligned with the World Health Organization and the Centers for Disease Control and Prevention in an effort to protect our workforce so they can more safely and effectively perform their work.

UCT uses its annual operating plan and industry growth projections to determine the appropriate level of staffing requirements. Staffing levels are aligned and adjusted on occasion throughout the year to ensure UCT meets its customer obligations, in line with any changes in demand, to ensure business continuity.

Social Responsibility

UCT believes that social responsibility is defined as "positively impacting society by ensuring the people we work with are safe and treated with dignity and respect, and by being a good neighbor in the communities in which we operate ". UCT applies its core values to employee engagement inside and outside the Company. Positively involving employees and giving back to communities is central to UCT's culture. Supported by the Company, UCT employees contribute directly to the community with their time and resources. In 2021, UCT organized and conducted 45 events designed to give back and support its communities. For 2022, the Company and its employees have committed to many additional activities and events in support of our social responsibility program.

Available Information

We file with the Securities and Exchange Commission ("SEC") our annual reports on Form 10-K, quarterly reports on Form 10-Q and current reports on Form 8-K pursuant to Section 13(a) or 15(d) of the Securities Exchange Act of 1934, as amended, or the Exchange Act. You may read and copy any materials we file with the SEC at the Public Reference Room maintained by the SEC at 100 F Street, N.E., Washington, D.C. 20549. You may also request copies of all or any portion of such material from the SEC at prescribed rates. Please call the SEC at 1-800-SEC-0330 for further information on the operation of the public reference room. In addition, materials filed electronically with the SEC are available at the SEC's website at http://www.sec.gov.

In addition, we make available free of charge, on or through our website at http://www.uct.com, our annual, quarterly and current reports and any amendments to those reports, as soon as reasonably practicable after electronically filing such reports with, or furnishing them to, the SEC. This website address is intended to be an inactive textual reference only; none of the information contained on our website is part of this report or is incorporated by reference herein.

Executive Officers

Set forth below is information concerning our executive officers as of February 22, 2022.

Name	Age	Position
James P. Scholhamer	55	Chief Executive Officer and Director
Sheri Savage	51	Chief Financial Officer
Vijay S. Chinnasami	56	Chief Operating Officer
Jeff McKibben	59	Chief Information Officer
W. Joseph Williams	49	President, Products Business
William C. Bentinck	60	President, Services Business
Amir Widmann	53	President, Fluid Solutions
Chris P. Siu	51	Senior Vice President, Chief Accounting Officer
Jamie Palfrey	54	Senior Vice President, Global Human Resources
Paul Y. Cho	44	General Counsel and Corporate Secretary

James P. Scholhamer joined the Company as Chief Executive Officer and a member of our Board of Directors in January 2015. Prior to joining Ultra Clean, Mr. Scholhamer served as Corporate Vice President and General Manager of Applied Materials, Inc., leading the Equipment Products Group and Display Services Group of its Global Service Division from February 2011 to January 2015. Mr. Scholhamer joined Applied Materials, Inc. in 2006, where, prior to his most recent position, he served as Vice President of Operations-Energy, for the Environmental and Display Products Division from July 2006 to December 2008 and Corporate Vice President and General Manager of the Display Business Group from December 2008 to February 2011. Prior to that, Mr. Scholhamer worked for Applied Films Corporation as Vice President of Operations, Engineering and Research Development in the company's German office from September 2002 to July 2006 and as Vice President of Thin Film Coating Division and Thin Film Equipment Division in the company's Colorado office from July 2000 to September 2002. Mr. Scholhamer holds a B.S. in Materials and Metallurgical Engineering from the University of Michigan.

Sheri Savage has served as our Chief Financial Officer since July 2016. Ms. Savage joined the Company as the Senior Director of Finance in April 2009. She was Senior Vice President of Finance and Chief Accounting Officer from February 2016 to July 2016. Prior to joining the Company, Ms. Savage served at Credence Systems Corporation, a manufacturer of test equipment for the global semiconductor industry, as its Corporate Controller and Vice President of Finance from February 2008 to February 2009 and as Director of Internal Audit from May 2006 to February 2008. Prior to Credence Systems, Ms. Savage served in various accounting and finance roles at Protiviti, a global business consulting and internal audit firm, and KLA-Tencor Corporation, a supplier of process control and yield management solutions for the semiconductor and related nanoelectronics industries. Ms. Savage also served as Manager, Business Process Risk Accounting, at Arthur Anderson LLP, the former accounting firm, from May 1996 to October 1999. Ms. Savage holds a B.S. in Managerial Economics from the University of California, Davis.

Vijayan S. Chinnasami has served as our Chief Operating Officer since April 2019. Prior to joining the Company, Mr. Chinnasami served as the Senior Vice President of EMS Operations at Jabil Inc. from March 2017 to March 2019, as Chief Executive Officer of CaliBurger (Malaysia) from January 2015 to January 2017 and as Chief Executive Officer of Advanced Optronic Devices (Malaysia) from January 2014 to January 2017. Prior to that, Mr. Chinnasami served in various capacities with SunEdison International, Inc. (formerly MEMC Electronic Materials, Inc.), including most recently as Senior Vice President, Solar Materials, from May 2010 to August 2014, where his responsibilities included the executive management of the polysilicon, wafer, cell and module businesses. Mr. Chinnasami's previous roles have also included Senior Vice President, Industrial Business Unit at Johnson Electric Health Hong Kong and Vice President and General Manager, Consumer Segment of Flextronics International, Ltd. Mr. Chinnasami holds a B.S. in Production Engineering from Swinburne University of Technology.

Jeff McKibben has served as our Chief Information Officer ("CIO") since 2021. Mr. McKibben possesses over 30 years' experience managing IT in large, global high-tech manufacturing companies and has extensive experience with international M&A, product development, supply chain complexity, sales and marketing innovation, program management and building organizational competency. Prior to joining UCT, Jeff was CIO at ON Semiconductor, a $6 billion global manufacturer driving innovation in energy efficient electronics. He previously held a range of roles at Hewlett Packard in global IT management, consulting, and enterprise program management. Mr. McKibben holds an M.S. in Management Information Systems from the University of Arizona and a B.S. in Humanities and International Relations cum laude from Georgetown University.

W. Joseph Williams has served as our President, Products business since October of 2018. Prior to that Mr. Williams served as our Senior Vice President of Customer Business Management from October 2016 to October 2018. Mr. Williams joined the Company in February 2015 with the acquisition of Marchi Thermal Systems, Inc. where he served as President until 2016. Prior to joining the Company in 2015, Mr. Williams was President of Thermal from April 2013 to 2015. He worked previously at the Company as Vice President of New Business Development. Mr. Williams was Senior Vice President of Business Development & Engineering at Advanced Integration Technology from 2007 to 2013. Prior to that, Mr. Williams co-founded Integrated Flow Systems and served as Vice President of Engineering and Operations and Director of Engineering and Operations from 1997 to 2007. He worked at Watkins-Johnson Company as a R&D Mechanical Design Engineer from 1994 to 1997. Mr. Williams holds a B.S. in Mechanical Engineering from North Carolina State University.

William C. Bentinck has served as our President, Semiconductor Services Business since May 2019. Mr. Bentinck joined the Company as Senior Vice President, Semiconductor Services Business, in March 2019. Mr. Bentinck previously served as Executive Vice President and General Manager of Eugenus, Inc., a semiconductor equipment manufacturing company, from November 2017 to June 2018. Prior to that, Mr. Bentinck served as Vice President and General Manager of the Logic & Memories Technology Group for AIXTRON Inc., a manufacturer of systems and equipment to the semiconductor industry, from April 2014 to November 2017. From August 2006 to March 2014, Mr. Bentinck served as General Manager, Customer Support Business Group (Spares & Services) for Lam Research Corporation, a global supplier of wafer fabrication equipment and services to the semiconductor industry. Prior to Lam Research Corporation, Mr. Bentinck served in various roles of increasing responsibility at Novellus Systems, Inc., a provider of advanced process equipment for the global semiconductor industry, from 1991 through August 2006. Mr. Bentinck holds a B.S. in Chemical Engineering, and a M.S. in Engineering – Material Science, from California State Polytechnic University, Pomona.

Amir Widmann has served as President of Fluid Solutions since April 2021. Mr. Widmann joined UCT with the acquisition of the Ham-Let Group. Mr. Widmann has more than 20 years' semiconductor industry experience, and has a broad background in product management, marketing and sales gained from his time and increasing levels of responsibility at equipment companies Applied Materials and KLA Corp prior to his tenure as CEO of Ham-Let. Mr. Widmann holds an MBA and a B.S. in Mechanical Engineering, both from Technion - Israel Institute of Technology.

Chris P. Siu has served as our Senior Vice President, Chief Accounting Officer since May 2019. Prior to joining the Company, Mr. Siu served as Vice President of Finance at PDF Solutions, Inc., a provider of differentiated data and analytics solutions to the semiconductor industry, since October 2018. Prior to PDF Solutions, Mr. Siu served at Global Foundries, Inc., a foundry for the semiconductor industry, as its Corporate Controller from June 2014 to October 2018, and in other executive roles from November 2010 to June 2014. Prior to that, Mr. Siu served at Trident Microsystems, Inc. a provider of high-performance multimedia semiconductor solutions, as its Chief Accounting Officer and Director of Finance from February 2007 to November 2010. Prior to Trident Microsystems, Mr. Siu served at Varian Medial Systems, Inc., a manufacturer of medical devices for the treatment of cancer, in different finance management roles from June 2004 to February 2007. Prior to that, he worked for Deloitte & Touche from 2001 to 2004 and for Ernst & Young from 1996 to 2001. Mr. Siu holds a B.S. in Accounting from Brigham Young University in Hawaii and an MBA from the University of California at Berkeley. Mr. Siu is a Certified Public Accountant (inactive) in California.

Jamie Palfrey has served as the Senior Vice President of Global Human Resources since May 2021. Ms. Palfrey has spent more than 25 years leading global HR teams in 40+ countries in North America, South America, Europe and Asia. Prior to joining UCT, Ms. Palfrey served in executive and senior management roles in technology companies including Shape Technologies Group, FEI Company, Lam Research and ConocoPhillips. She brings a strong and diverse background with a passion for strategic talent acquisition, global compensation/benefits and total rewards programs, organizational design, development and succession planning, and employee relations. Ms. Palfrey holds a master’s in Education with a focus on occupational training and development/instructional design from University of Louisville and a B.S. in Business from Portland State University.

Paul Y. Cho has served as our General Counsel and Corporate Secretary since October 2019. Mr. Cho brings over a decade of experience in various legal disciplines, including IP and commercial litigations, joint venture projects, and commercial transaction work. Most recently, from April 2016 to October 2019, Mr. Cho held the position of General Counsel and Corporate Secretary for the North American operations of the world’s second largest memory chip supplier, SK Hynix, Inc., and held the position of Senior Counsel at its corporate headquarters from September 2014 to March 2016. Prior to SK Hynix Inc., Mr. Cho served as Senior Legal Counsel for Samsung SDI, a storage battery manufacturing company, from June 2013 to September 2014 and as Legal Counsel for LG Electronics, an electronics company, from April 2012 to May 2013. Mr. Cho holds a B.A. in English from the University of Michigan and a J.D. from the University of Minnesota Law School.

Item 1A. Risk Factors

The following risk factors could materially and adversely affect the Company's business, financial condition or results of operations and cause reputational harm and should be carefully considered in evaluating the Company and its business, in addition to other information presented elsewhere in this report.

COVID-19 outbreak continues to adversely affect semiconductor industry

The COVID-19 outbreak and global governmental responses to contain its spread, have impacted all levels of the semiconductor industry and global supply chain. Governmental measures, including stay-at-home orders, travel bans, China's "zero COVID" policy and business closures, as well as our own efforts to minimize the impact of COVID-19 on our employees, suppliers and customers, affected, our business operations in 2021 and continue to have an impact, but to a lesser degree on our business continuity plans. Our pandemic guidelines remain in place which include social distancing guidelines, travel restrictions, work-from-home arrangements, and testing and quarantine guidelines.

The scale and duration of this ongoing pandemic and the effectiveness of response measures in curbing its impact, including distribution of COVID-19 vaccines and government stimulus programs, which makes it difficult to estimate their ongoing impact on our business and global economy.

Because the ongoing impact of the pandemic on our business is largely dependent upon current and future response measures outside of our control, we cannot with any degree of confidence provide assurance that we will be able to maintain the current level of production, as we may see a decrease in customer spending, demand for our products, delays and capacity limitations at our (and our customers' and suppliers') manufacturing facilities, and other adverse impacts on global economy, any one of which can have material adverse impact on our business.

The cyclical and highly volatile nature of the industries we serve could harm our operating results.

Our business depends in large part upon capital expenditures by manufacturers in the semiconductor and display industries, which in turn depend upon the current and anticipated market demand for such products. These industries (especially the semiconductor industry) have historically seen recurring periods of over-supply of products that have materially reduced the demand for both the capital equipment and the services required to manufacture such products. We likely will continue to experience fluctuations in customer orders through such cycles. Although some of our business, including the cleaning, coating and analytical services that support the semiconductor chip market, are less susceptible to such fluctuations, recurring slowdowns in the industries we serve have historically had adverse effects on our overall operating results. Demand shifts in these industries are rapid and difficult to predict, and we may not be able to anticipate or respond quickly enough to changes in demand.

Our revenues in periods of increasing demand depends, in part, upon our ability to: (i) timely mobilize our supply chain to maintain component and raw material supply; (ii) optimize our design, as well as mobilize our engineering and manufacturing capacity in a timely manner; (iii) expand, as necessary, our manufacturing, cleaning, coating and analytical services capacity; and (iv) maintain our product and service quality as we increase production. If we fail to timely respond to rapid increases in demand for our products and services, or to effectively manage the corresponding expansion of our manufacturing and service capacity, our customers may divert their purchases of products and services from us to our competitors.

Our ability to remain profitable and mitigate the impact on our business in periods of decreasing demand depends, in part, upon our ability to: (i) maintain the prices, quality and delivery cycles of our products and services while managing costs by optimizing our inventory levels, (ii) reduce or cancel orders from our suppliers, all without compromising our relationships with such suppliers; and (iii) continue to motivate our employees while reducing our fixed and variable costs through various initiatives, which may include reducing our workforce.

The limited visibility we have on the future needs of our customers, combined with the cyclical and volatile nature of the industries we serve, makes future revenues, results of operations and net cash flows difficult to estimate.

We rely on a small number of OEMs and IDMs for a large portion of our revenues, who could stop outsourcing critical subsystems or part cleaning, coating or analytical services, or give market share to our competitors.

A small number of OEM customers have historically accounted for a significant portion of our revenues, and we expect this trend to continue. Our top two customers accounted for 64.0%, 67.1% and 66.9% of our revenues for fiscal years 2021, 2020 and 2019, respectively. Because most of these customers are not contractually obligated to

place any orders with us, the success of our products business largely depends on these OEMs' own discretion, which discretion is buttressed by the fact that the OEMs generally own and are therefore free to license as they see fit, the designs and other intellectual property to the products we manufacture for them. And since most of these OEMs are already our customers, any lost revenue resulting from the loss, reduction, cancellation or delay in purchase orders by, any one of these customers would be difficult to replace. In the past, we have seen decreases in our business volume for those customers who have taken the manufacturing of our products in-house, given market share to our competitors, or declared bankruptcy.

Our Services business provides part cleaning, coating and analytical expertise to both IDM and OEM customers. Our IDM business is similarly concentrated in a small number of customers, and we compete with in-house capabilities, the OEMs who perform cleaning as part of service contracts, and other providers of cleaning, coating and analytical services. The OEM customer profile of our Services business has significant overlap with our Products business, and we similarly compete against other providers of cleaning, coating and analytical services. Because our cleaning and analytical processes are proprietary to us, our customers may need to go through a new qualification process if they decide to transition to a new service provider.

Consolidation among our customers, or a decision by any one or more of our customers to outsource all or most manufacturing, assembly, cleaning, coating and analytical services work to a single equipment manufacturer, may further concentrate our business in a limited number of customers and expose us to increased risks relating to dependence on an even smaller number of customers.

Our customers also exert a significant amount of negotiating leverage over us, which may force us to accept lower operating margins, increased liability risks or changes in our operations in order to retain their business.

Due to their size and level of contribution to our revenue, our largest customers are able to exert significant pressure to seek various concessions in our commercial agreements and individual purchase orders. Our customers often require reduced prices or other quality, manufacturing or delivery commitments as a condition to placing purchase orders. This could, among other things, result in reduced operating margins or require capital or other expenditures in order to maintain or expand our market share. Further, these customers may require us to agree on certain terms and conditions that shift certain risks onto us. For example, our customers generally require indemnity against certain liabilities, which may include claims of losses by their own customers arising out of property damages, bodily injuries or deaths, or infringement of intellectual property rights by our products. Our potential liability for infringing upon a third party's intellectual property is generally uncapped, and in some cases, we have self-insured against these liability risks, such that we do not have a third-party insurer to reimburse us against these losses. Our customers may also pressure us to make other concessions in order to preserve or expand our market share with them. For example, customers may prevent us from moving our manufacturing sites from higher-cost regions to lower-cost regions, while simultaneously seeking price reductions. If we are unable to retain and expand our business on favorable commercial terms, our business will be adversely affected and we may be susceptible to increased liability risk.

Our dependence on our suppliers may prevent us from delivering an acceptable product on a timely basis.

We rely on both single-source and sole-source suppliers, many of whom have been specifically designated by our customers, for many of the components and raw materials we use in our products and services. If a supplier, who may not be under any long-term supply obligations, fails to provide the necessary volume of components or raw materials on a timely basis and at acceptable prices and quality, we would be forced to identify and qualify replacements from alternative sources. The process of qualifying new suppliers for complex components and raw materials is lengthy and could delay our production or delivery of services.

For example, our recently acquired subsidiary, Ham-Let may face sharp price fluctuations in raw materials, which can significantly affect its cost of revenue and could erode profitability and competitiveness.

We may also experience difficulty in obtaining sufficient quantities of components and raw materials in times of growth in our business. In the past, we have experienced shortages in supplies of various components, such as mass flow controllers, valves and regulators, and certain prefabricated parts, such as sheet metal enclosures, used in the manufacture of our products. Some of the suppliers designated by our customers are also our competitors, which presents a special challenge for us to procure the components in sufficient quantity to meet the customer demands. If we, or our suppliers, are unable to procure sufficient quantities of supplies, components or raw materials, our customers could delay or cancel orders or service contracts.

The manufacturing of our products and the services we provide are highly complex, and if we are not able to manage our manufacturing and procurement process effectively, our business and operating results will suffer.

The manufacturing of our products is a highly complex process. The services we provide are also highly complex, and dependent upon procuring specialty materials necessary to correctly perform such complex services with precision. Both the manufacturing of our products and the services we provide involve the integration of multiple components and require effective management of our supply chain to meet our customers' design-to-delivery cycle time requirements. Through the course of the manufacturing process, our customers may modify design and system configurations in response to changes in their own customers' requirements. In order to respond to these modifications and deliver our products in a timely manner, we must effectively manage our manufacturing and procurement processes, the failure of which can lead to a loss of business and reputational damage. We may also be liable for certain damages under our agreements with our customers, if we or our suppliers fail to effectively or timely re-configure manufacturing processes or components in response to these modifications.

Our inability to successfully manage the implementation of a company-wide enterprise resource planning ("ERP") system could adversely affect our operating results.

We are continuing the implementation of a new company-wide ERP system. This process has been and continues to be complex and time-consuming and we expect to incur additional capital outlays and expenses. This ERP system will replace many of our existing operating and financial systems, which is a major undertaking from a financial management and personnel perspective. Should the new ERP system not be implemented successfully throughout all our business units on time and within budget, or if the system does not perform in a satisfactory manner, it could be disruptive and adversely affect our operations, including our ability to: (i) report accurate, timely and consistent financial results; (ii) purchase supplies, components and raw materials from our suppliers; and (iii) deliver products and services to customers on a timely basis and to collect our receivables from them. We have teams leading the implementation of the ERP system at most of our locations. To the extent these teams or key individuals are not retained through the implementation process, the success of our implementation could be compromised and the expected benefits of the ERP system may not be realized.

We are subject to order and shipment uncertainties and any significant reductions, cancellations or delays in customer orders could cause our revenue to decline and our operating results to suffer.

Forecasting our revenue can be challenging because we generally do not have a material backlog of unfilled orders and because of the short time frame within which we are often required to design, produce or deliver products to our customers. Much of our revenue depends on customer orders for our products that we receive and fulfill in the same quarter. We generally do not have long-term purchase orders or contracts that contain minimum purchase commitments from our customers. Instead, we typically plan around non-binding volume forecasts we receive from our customers, and we sometimes order and build component inventory in advance of the receipt of actual customer orders. Customers may cancel order forecasts, change production quantities from forecasted volumes, or delay production for reasons beyond our control, and for which we usually are not entitled to compensation. Reductions, cancellations or delays in forecasted orders could cause us to hold inventory longer than anticipated, which could reduce our gross profit, restrict our ability to fund our operations and cause us to incur unanticipated reductions or delays in revenue. Moreover, many of the products we manufacture are custom built for our customers and are therefore not fungible with products we sell to other customers. If we do not obtain orders as we anticipate, we could have excess component inventory for a customized product that we would not be able to sell to another customer, likely resulting in inventory write-offs. In addition, because many of our costs are fixed in the short term, we could experience deterioration in our gross profit and operating margins when our sales volumes decline.

We hold our customers' parts on our premises and any significant damage or loss to these parts could cause our operating results to suffer.

In connection with our Services business, we face a number of risks associated with customer parts being held on our premises, including the risk of mishandling or damaging, customer parts, any of which could be materially harmful for our business.

Our results of operations, financial position and cash flows may suffer if we do not effectively manage our inventory.

Inventory is one of the largest assets on our balance sheet, representing 18.7% of our total assets as of December 31, 2021. Effective management of raw materials, work-in-process and finished goods is imperative to keep inventory costs down and maintain or improve gross margins, all the while meeting changing customer requirements.

Historically, the industries we serve (in particular the semiconductor capital equipment industry) have been highly cyclical, which makes accurately forecasting customers' product needs difficult. Although we seek to maintain sufficient inventory of materials to guard against interruptions in supply and meet our customers' needs, we may experience shortages of certain key materials, particularly in times of high industry demand. We also often face long lead times from our suppliers, which may be longer than the lead times provided to us by our customers. If we underestimate customer demand or if such demand exceeds our manufacturing capacity or available raw materials, we may lose sales opportunities and market share and potentially damage our relationships with customers.

An overestimation of customer demand may result in allocation of resources for products that we may not be able to sell, and we may be forced to hold excess or obsolete inventory. Some of our products can become obsolete while in storage due to changing customer specifications or become excess inventory due to a decrease in demand. Furthermore, if market prices drop below the prices at which we value our inventory, we would need to take a charge for a reduction in inventory values in accordance with the applicable accounting rules. Any unexpected changes in demand or increases in manufacturing costs that cause us to take additional charges for un-saleable, obsolete or excess inventory, or to reduce inventory values, would adversely affect our results of operations.

We hold our inventory at various manufacturing sites globally and many of these sites have more than one warehouse. We rely upon our IT systems and internal controls to accurately and timely manage, store and replenish inventory, complete and track customer orders, coordinate sales activities across all of our products and maintain and report vital data and information. A disruption in our IT systems or a failure of our internal controls could result in delays in receiving inventory and supplies, delays in filling customer orders, incorrect inventory counts, over or under stocking, and loss of inventory.

Our customers require our products to undergo a lengthy and expensive qualification process. Any delay or failure in this process could result in a material financial harm.

We have had to qualify as a supplier, and maintain that status, for each of our customers. This is often a lengthy process that normally involves customer inspection and approval of our engineering, documentation, manufacturing and quality control procedures before the customer will place volume orders. Such qualification requirements limit our ability to quickly add new customers to offset any loss of, or reduction in sales to, existing customers. Moreover, if we fail to maintain our status as a qualified supplier to any of our customers, such customer could cancel its orders or otherwise terminate its relationship with us.

Defects in our products or services could damage our reputation, decrease market acceptance of our products, release hazardous materials, and result in litigation, indemnification liability or unexpected warranty claims.

A number of factors, including design flaws, material and component failures, workmanship issues, contamination in the manufacturing, cleaning, coating or analytical environment, impurities in the materials or chemicals used, equipment failures, and unknown sensitivities to process conditions, such as temperature and humidity, may cause our products to contain undetected errors or defects. Problems with our products may:

- cause delays in product introductions and shipments for us or our customers;
- result in increased costs and diversion of development resources (for design modifications and others);
- cause us to incur increased charges due to unusable inventory;
- result in liability for the unintended release of hazardous materials through the defective products, which can cause serious injury or death;
- create indemnification and warranty claims for rework, replacement or other damages, which can be significant if our products have already been installed in a fabrication facility;
- decrease market acceptance of, or customer satisfaction with, our products; and
- result in lower yields for semiconductor manufacturers.

Acquisitions could result in operating and integration difficulties, dilution, margin deterioration, diversion of management's attention, and other consequences that may materially impact our business.

We have made, and may in the future make, acquisitions of, or significant investments in, businesses that offer complementary products, services, technologies or market access. We expect that management will regularly evaluate potential strategic transactions with its advisors and our board of directors in the ordinary course of business. We may not be successful in negotiating the terms or financing for potential acquisitions and our due diligence may fail to identify all of the problems, liabilities or other challenges associated with an acquired business,

product or technology, including issues related to intellectual property, product quality or product architecture, regulatory compliance practices, revenue recognition or other accounting practices or employee or customer retention issues. In addition, we may not be successful in effectively integrating the acquired business, product or technology into our existing business and operations. The areas where we face risks include:

- management of a larger, more complex and capital intensive combined business, including integrating supply and distribution channels, computer and accounting systems, and other aspects of operations;
- exposure to new operational risks, rules, regulations, worker expectations, customs and practices;
- inability to complete proposed transactions due to the failure to obtain regulatory or other approvals, litigation or other disputes, and any ensuing obligation to pay a termination fee;
- reduction of gross margins and pricing leverage due to the acquired company having the same customer base;
- failure to realize expected returns from acquired businesses;
- reduction in cash balances or increase in debt obligations to finance the acquisition, which may reduce the availability of cash flow for general corporate or other purposes;
- integration of the capabilities of the acquired businesses without reducing the quality of existing products;
- incorporation of different financial and reporting controls, processes, systems and technologies into our existing business environment;
- unforeseen liabilities, expenses, or other losses associated with the acquisitions for which we do not have recourse under their respective agreements;
- the risk of litigation or claims associated with a proposed or completed transaction;
- inadequacy or ineffectiveness of an acquired company's internal financial controls, disclosure controls and procedures, or environmental, health and safety, anti-corruption, human resource or other policies or practices;
- performance shortfalls as a result of the diversion of management's attention from the Company's operations;
- cultural challenges associated with integrating employees from the acquired business into our organization, and incentivization and retention of employees from the businesses we acquire; and
- difficulties associated with the retention and transition of new customers and partners into our existing business.

If we fail to address these risks, we may not be able to realize the anticipated benefits of such acquisitions or investments and incur unanticipated liabilities and substantial costs, materially harming our business in the process.

Our acquisitions could also result in one or more of the following: dilutive issuances of our equity securities, additional debt, contingent liabilities, amortization expenses, impairment charges and restructuring charges, any of which could harm our financial condition. Also, due to prevailing conditions in the credit market and our existing leverage, the financing of any such acquisition may be difficult to obtain, and the terms of any such financing may not be favorable.

On March 31, 2021, we completed the acquisition of Ham-Let. The integration of Ham-Let into our larger business operations will likely face similar challenges as occurred with our QGT and DMS acquisitions, and may pose additional challenges.

The challenges involved with this integration include: continuing to maintain customers and other important relationships; continuing to compete effectively in the served markets; completing the consolidation of IT, finance, general and administrative infrastructures; continuing to improve the coordination of our sales and marketing efforts to effectively position our capabilities; and fully integrating employees and related HR systems and benefits. The integration process continues to require significant management attention and may divert the attention of management from our other business and operational issues.

Our business may be adversely affected by IT disruptions, including by impairing our ability to effectively deliver our products or services, which could cause us to lose customers.

The manufacture and delivery of our products, the provision of our services and our financial reporting depend on the continuing operation of our technology infrastructure and systems, particularly our data center located in California. Any damage to or failure of our systems could result in interruptions in our ability to manufacture or

deliver products or services, or adversely impact our ability to accurately and timely report our financial results. Interruptions could reduce our sales and profits, and our systems could be perceived as unreliable. Our systems and operations are vulnerable to damage or interruption from earthquakes, terrorist attacks, floods, fires, power loss, hardware or software failures, telecommunications failures, cybersecurity attacks, and similar events. Some of the critical components of our system are not redundant and we currently do not have a backup data center.

Cybersecurity attacks, in particular, are evolving and include, but are not limited to, malicious software, attempts to gain unauthorized access to data, and other electronic security breaches that could lead to disruptions in systems, unauthorized release of confidential or otherwise protected information and corruption of data (our own or that of third parties). Although we have adopted certain measures to mitigate potential impacts to our systems from IT-related disruptions, including adding a Chief Information Officer and a Chief Security Officer, and given the unpredictability of the timing, nature and scope of such disruptions, we could experience detrimental impacts on our operations or ability to provide products and services to our customers (such as production downtimes and operational delays), misappropriation, destruction or corruption of confidential information or other data, security breaches, other manipulation or improper use of our systems or networks, financial losses from remedial actions, and/or reputational harm, any of which could have a material adverse effect on our business.

If we experience frequent or persistent system failures, the attractiveness of our products or services to customers could be permanently harmed. Any steps we take to increase the reliability and redundancy of our systems may be expensive, reduce our operating margin and may not be successful in reducing the frequency or duration of unscheduled interruptions.

We are exposed to risks associated with volatility in the global economy.

We rely heavily on OEM customers for the success of our business. The success of OEMs' business is, in turn, directly related to the success of the IDMs and other chipmakers, whose customers are engaged in consumer-facing businesses. Much of our success, therefore, depends on consumer spending and capital expenditures by retail businesses. Uncertainty regarding the global economy may exacerbate negative trends in business and consumer spending, which may cause our customers to scale back operations, reduce capital expenditures, exit businesses, move capacity to other manufacturers, in-source capacity or file for bankruptcy protection and potentially cease operations. Our customers may then be forced to push out, cancel or refrain from placing orders for our products or services. These conditions may also similarly affect key suppliers, impairing their ability to timely deliver components or raw materials. We may then be forced to procure components or raw materials from higher-cost suppliers or reconfigure the design and manufacture of our products or services, which may eventually lead to our failure to fill customer orders. Recent inflationary trends, have had, and could continue to have, a negative impact on many aspects of our cost structure.

Escalating trade tensions and the adoption of tariffs and trade restrictions could negatively impact us.

International trade tensions or trade wars, as well as other changes in social, political, regulatory and economic conditions or laws and policies, could have a material adverse impact on our business. We and our customers have significant operations in China. The impact of the ongoing conversation between the United States and China regarding each country's commitments under the "Phase One" trade deal on current tariffs and other trade restrictions between the two countries are difficult to predict. Any newly imposed or threatened U.S. tariffs and retaliatory tariffs could have the negative effect of increasing the cost of materials for our products, which could result in our products becoming less competitive or generating lower margins. Also, the United Kingdom's ("UK") withdrawal from the European Union ("EU") ("Brexit") continues to create significant uncertainty concerning the future relationship between the UK and the EU and the impact on global markets. It remains unclear what financial, trade, regulatory and legal implications the trade arrangements between UK and EU, as well as between the UK and US, will have and how it will affect us. The economic uncertainty created by Brexit may cause our customers to closely monitor their costs and reduce their spending budgets, which could have a material adverse impact on our business, financial condition and results of operations.

Other changes in U.S. or international social, political, regulatory and economic conditions or laws and policies governing tax laws, foreign trade, manufacturing, and development and investment in the countries where we or our customers operate could also adversely affect our operating results and our business. International trade disputes could result in increases in tariffs and other trade restrictions and protectionist measures that could adversely impact our operations and reduce the competitiveness of our products relative to local and global competitors.

We have significant existing indebtedness; the restrictive covenants under our credit agreement or other limitations on financing may limit our ability to expand or pursue our business strategy; if we are forced to pay our indebtedness prior to its maturity, our financial position could be materially and adversely affected.

As of December 31, 2021, we have gross debt of $565.4 million. Such debt is composed of a $555.1 million term loan outstanding under our credit agreement with Barclays Bank, $8.9 million under credit facilities at Ham-Let and $1.4 million under the credit facilities at Cinos China less unamortized debt costs of $13.4 million.

Our indebtedness could have adverse consequences, including: allotment of a portion of our cash to interest and principal payments and will therefore not be available for operations, working capital, capital expenditures, expansion, acquisitions or general corporate or other purposes; and inability to obtain additional financing in the future, if needed. If we are unable to meet our debt obligations as they come due, we could be forced to restructure or refinance such obligations, seek additional equity financing, incur additional debt or sell assets, which we may not be able to do on satisfactory terms, if at all.

Our credit agreement contains certain covenants that restrict our ability to take certain actions, including incurring additional debt, providing guarantees, creating liens, making certain investments, engaging in transactions with affiliates and engaging in certain mergers and acquisitions. We are also required to comply with certain financial covenants, including the maintenance of a maximum consolidated total gross leverage ratio and a minimum fixed charge coverage ratio. Failure to comply with these covenants could result in the acceleration of all of our indebtedness, which could materially and adversely affect our financial health. As long as our indebtedness remains outstanding, the restrictive covenants and mandatory prepayment provisions could impair our ability to expand or pursue our business strategies or obtain additional funding.

We may not be able to fund our future capital requirements or strategic acquisitions from our operations, and financing from other sources may not be available on favorable terms or at all.

We made capital expenditures of approximately $69.5 million and $37.2 million for fiscal years 2021 and 2020, respectively, which are primarily related to investments in our manufacturing facilities in the United States, Malaysia, China, Singapore and South Korea and to our ERP system implementation. The amount of our future capital requirements will depend on many factors, including: the cost associated with the expansion of our manufacturing capacity into Malaysia as part of our strategic growth plan; the cost to maintain appropriate IT systems; the cost to maintain adequate manufacturing capacity; the timing and extent of spending to support product development efforts; the timing of new product introductions and enhancements to existing products; the timing, size and availability of strategic transactions; the cost to integrate our acquisitions into our business environment; changing manufacturing capabilities to meet new or increased customer requirements; market acceptance of our products; and our ability to generate sufficient cash flow from our operating activities.

In order to finance our capital expenditures or any future strategic acquisitions, we may need to raise additional funds through public or private equity or debt financing, but such financing may not be available on terms satisfactory to us, or at all. In addition, equity financings could be dilutive to holders of our common stock, and debt financings would likely involve additional covenants that restrict our business operations. Any potential strategic acquisition or significant capital expenditure may also require the consent of our existing lenders. If we cannot raise funds on acceptable terms when needed, we may not be able to develop or enhance our products, take advantage of future opportunities, grow our business or respond to competitive pressures or unanticipated requirements.

Our quarterly revenue and operating results could fluctuate significantly from period to period, and this may cause volatility in our common stock price.

Our quarterly revenue and operating results, including our gross margin, have fluctuated significantly in the past, and we expect them to continue to fluctuate in the future for a variety of reasons, which may include:

- the cyclical nature of the industries we serve that frequently oscillates between downturns and growths;
- changes in the timing and size, or cancellation or postponement, of orders by our customers;
- strategic decisions by our customers to terminate their outsourcing relationship with us or give market share to our competitors, which may result from decreased demand for our customers' products by end customers;
- strategic consolidation by our customers;
- pricing pressure from either our competitors or our customers;

- disruptions or delays in the manufacturing of our products or in the supply of components or raw materials;
- introduction of new products or services;
- delays in production ramp-up, low yields or other problems experienced at our manufacturing facilities;
- changes in design-to-delivery cycle times;
- inability to reduce our costs quickly, commensurate with reductions in our prices or in response to decreased demand;
- changes in our product and/or service mix;
- write-offs of excess or obsolete inventory;
- one-time expenses or charges associated with failed acquisition negotiations or completed acquisitions;
- inability to control our operating costs consistent with target levels;
- announcements by our competitors of new products, services or technological innovations; and
- geographic mix of customer orders or worldwide earnings.

As a result of the foregoing, we believe that quarter-to-quarter comparisons of our revenue and operating results may not be meaningful and that these comparisons may not be an accurate indicator of our future performance. Changes in the timing or terms of a small number of transactions could disproportionately affect our operating results in any particular quarter. Moreover, our operating results in one or more future quarters may fail to meet our guidance or the expectations of securities analysts or investors. If this occurs, we would expect to experience an immediate and significant decline in the trading price of our common stock.

We have established and, as circumstances may require, intend to expand our operations globally, which exposes us to risks associated with operating in foreign countries.

We generated approximately 65.1% and 58.4% of our revenues in international markets for fiscal years 2021 and 2020, respectively. Depending on market conditions, we intend to further expand our operations in Asia Pacific and EMEA. The carrying amount of our fixed assets in Asia Pacific and EMEA were $129.0 million and $53.4 million, respectively as of December 31, 2021 and $90.4 million and $9.4 million, respectively as of December 25, 2020.

We are exposed to political, economic, legal and other risks associated with operating in Asia and EMEA, including:

- foreign currency exchange fluctuations;
- political, civil, public health and economic instability;
- restrictive governmental actions, such as restrictions on the transfer or repatriation of funds and foreign investments, import/export restrictions and quotas, and customs duties and tariffs;
- uncertainty regarding social, political and trade policies in the United States and abroad;
- timing and availability of export licenses;
- disruptions due to China’s developing domestic infrastructure, including transportation and energy;
- difficulties in developing relationships with local suppliers, attracting new international customers, conducting due diligence with respect to business partners in certain international markets, collecting accounts receivables, and staffing and managing distant international subsidiaries and branch operations;
- the burden of complying with foreign and international laws and treaties;
- legal systems potentially subject to undue influence or corruption; and
- potentially adverse tax consequences, including restrictions on the repatriation of earnings to the United States.

Negative or uncertain global conditions could prevent us from accurately forecasting demand for our products and services. In addition, a shift in the mix of orders from our customers away from low-cost markets to higher cost markets could adversely affect our operating margins.

Our operations in Asia Pacific and EMEA are subject to U.S. regulations governing equipment export. These laws are complex and require us to obtain export licenses, a failure of which could expose us to fines, penalties and

export ban. The U.S. Department of Commerce continually updates and often expands the list of entities, particularly in China, to whom U.S. companies cannot sell certain products without a license from the Department of Commerce. These rules and regulatory changes could have material adverse impact on the result of our operations.

Over the past several years, some foreign government authorities, including those in China and South Korea, have pursued economic reform policies by promoting local businesses and local economic activity. Without notice, these government authorities may continue or alter these policies to our detriment, including imposition of confiscatory taxation policies, new restrictions on currency conversion, and limitations on sources of supply.

We are subject to various laws and regulations of the countries where we conduct business, including laws and regulations relative to anti-corruption and anti-bribery, antitrust and competition, data privacy, and export regulations. These foreign laws and regulations are constantly evolving and may, in some cases, conflict with each other. Although our compliance policies against unethical business practices apply to all our employees and agents, any violation of these policies by a rogue employee or agent may expose us to enforcement actions against these laws and regulations.

Business practices in Asia may entail greater risk and dependence upon the personal relationships, and therefore some of our agreements with customers or suppliers in Asia could be difficult or impossible to enforce.

Our business activities in Asia are continuing to expand, where personal relationships generally play a larger part in the business culture than is common in the U.S. In some cases, oral agreements based on personal relationships play just as important a role as written contracts, resulting in certain material terms not being reduced to writing. Similarly, there is a tendency in some Asian businesses to treat written agreements as a starting point of an ongoing business relationship, which is expected to continually change over time. The difficulty associated with enforcing oral agreements may expose us to adverse business consequences.

We could be adversely affected by risks associated with joint ventures, including those in the Asian markets.

From time to time, we may seek to expand our business through investments in joint ventures with complementary businesses, technologies, services or products, in both new and existing market categories and geographic regions. Our investments in joint ventures are subject to a number of risks, including many of the same risks described above for our acquisition activities. In particular, at the closing of the QGT acquisition, we indirectly became a party to QGT's joint venture with Cinos Co., Ltd. ("Cinos Korea") in South Korea and Cinos Xi'an in China, which was our first experience with a joint venture. The success of these joint ventures will continue to demand significant management and capital resources, and effective management of those risks inherent in overseas joint venture operations, including: protection of our intellectual property; economic, political and labor instability; language and cultural differences; contractual enforcement issues; and managing product development, operations and sales activities that are physically far removed from our headquarters and have historically been centralized with local management. In addition, from time to time in the future, our joint venture partners may have economic or business interests that are different from ours. Furthermore, our joint venture with Cinos Korea will require us to make purchases of equity from time to time up to specified amounts. If each joint venture business does not progress according to our plans and anticipated timing, our investment in the joint ventures may not be successful.

The industries in which we participate are highly competitive and rapidly evolving.

We face intense competition from subsystem and component manufacturers in the industries we serve. Increased competition has in the past resulted, and could in the future result, in price reductions, reduced gross margins or loss of market share. Competitors may introduce new products in the markets currently being served by our products. These new products may have better performance, lower prices and achieve broader market acceptance than our products. Further, since our customers generally own the designs and other intellectual property to the products we manufacture on their behalf, we cannot prevent them from licensing such designs and other intellectual property to our competitors for the manufacture of such products. Similarly, while the cleaning and analytical processes we utilize are proprietary to us, OEMs are looking to increase their maintenance services and could create proprietary cleaning processes with competitors, limiting our ability to compete for future business.

Our competitors may have greater financial, technical, manufacturing and marketing resources than we do. As a result, they may be able to respond more quickly to new or emerging technologies and changes in customer requirements, devote greater resources to the development, promotion, sale and support of their products and services, and reduce prices to increase market share. Moreover, there may be merger and acquisition activities among our competitors and potential competitors that may provide our competitors and potential competitors an advantage over us by enabling them to expand their product offerings and service capabilities to meet a broader range of customer needs. Further, if one of our customers develops or acquires the internal capability to develop and produce critical subsystems that we produce, or cleaning, coating and analytical services we provide, the loss of that customer could have a material adverse effect on our business, financial condition and operating results.

If our new products are not accepted by OEMs or other customers or if we are unable to obtain historical margins on our new products, our operating results would be adversely impacted.

We design, develop and market critical subsystems and proprietary cleaning, coating and analytical services to OEMs, IDMs and other customers. The introduction of new products and processes is inherently risky because it is difficult to foresee the adoption of new standards, coordinate our technical personnel and strategic relationships and win acceptance of new products by our customers, and ultimately not be able to recoup design and development expenditures. Newly introduced products typically carry lower gross margins than existing products for several quarters following their introduction. If any of our new systems or subsystems are not successful in the market, or if we are unable to obtain gross margins on new products that are similar to the gross margins we have historically achieved, our business, operating results and financial condition could be adversely affected.

If we were required to impair all or part of our goodwill and/or our acquired intangible assets, our net income and net worth could be materially adversely affected.

We had $270.0 million of goodwill recorded on our Consolidated Balance Sheet as of December 31, 2021. Goodwill represents the excess of cost over the fair market value of net tangible and finite lived, identifiable intangible assets acquired in business combinations. If our market capitalization drops significantly below the amount of net equity recorded on our balance sheet, it could indicate a decline in our value and would require us to further evaluate whether our goodwill has been impaired. During the fourth quarter of each year, we perform an annual review of our goodwill and acquired intangible assets to determine if they have become impaired. We also conduct the same evaluation whenever events or changes in circumstances indicate that the carrying amount may not be recoverable. If we were required to impair all or a significant part of our goodwill and/or our acquired intangible assets, our financial results and net worth could be materially adversely affected.

Our business is largely dependent on the know-how of our employees, and we generally do not have an intellectual property position that is protected by patents.

Our business is largely dependent upon our design, engineering, manufacturing, chemical processing, analytical and testing know-how. We rely on a combination of trade secrets and contractual confidentiality provisions and, to a much lesser extent, patents, copyrights and trademarks to protect our proprietary rights. Confidentiality agreements with our employees and others may not adequately prevent disclosure of trade secrets and other proprietary information. Accordingly, our intellectual property position is more vulnerable than it would be if it were protected primarily by patents. If we fail to protect our proprietary rights successfully, our competitive position could suffer. We may be required to spend significant resources to monitor and protect our proprietary rights, and, in the event infringement or breach of our proprietary rights occurs, our competitive position in the market may be harmed. In addition, competitors may design around our technology or develop competing technologies and know-how.

Third parties may claim we are infringing their intellectual property, which could subject us to litigation or licensing expenses, and we may be prevented from selling our products if any such claims prove successful.

We have in the past and may in the future receive claims that our products, processes or technologies infringe the patents or other proprietary rights of third parties. Any litigation regarding third party patents or other intellectual property rights could be costly and time-consuming and divert our key resources from our business operations. The complexity of the technology involved in our products and the uncertainty of intellectual property litigation increase these risks. Claims of intellectual property infringement may also require us to enter into costly license agreements, possibly on terms unacceptable to us. We also may be subject to significant damages or injunctions against the development, manufacture and sale of certain of our products if any such claims prove successful. We also rely on design specifications and other proprietary information provided by our customers to manufacture products for such customers. While many of our customers are contractually obligated to indemnify us for the costs to defend third party claims arising out of our use of the information provided by the customers, the indemnified amount may not be enough to make us whole, or if our customers refuse to honor its obligations, we could end up in costly litigations both to defend against such third-party claims and to enforce our contractual indemnification rights.

We may become involved in litigations and regulatory proceedings, which could require significant attention from our management and result in significant expense to us and disruptions to our business.

In addition to any litigation related to our intellectual property rights, we may in the future be named as a defendant in other lawsuits and regulatory actions relating to our business, such as commercial contract claims, environmental compliance claims, employment claims, and tax examinations, any one of which may expose us to significant damages and reputational harm. The outcome of such litigations and regulatory proceedings is difficult to predict. An unfavorable outcome could have a material adverse effect on our business, including limiting our ability to engage in certain business activities. In addition, such proceedings are often expensive, time-consuming and disruptive to normal business operations and require significant attention from our management.

If we do not keep pace with developments in the industries we serve and with technological innovation generally, our products may not be competitive.

Rapid technological innovation in the markets we serve requires us to anticipate and respond quickly to evolving customer requirements and could render our current product or service offerings and technology obsolete. Technological innovations are inherently complex. We believe that our future success will depend upon our ability to timely design, engineer and manufacture products and services that meet the changing needs of our customers. If we are unable to integrate new technical specifications into competitive product and service designs, develop the technical capabilities necessary to manufacture new products or provide new services or make necessary modifications or enhancements to existing products or services, our business prospects could be harmed.

The timely development of new or enhanced products and services requires us to:

- design innovative and performance-enhancing features to differentiate our products and services;
- identify emerging technological trends, including new standards for our products and services;
- accurately identify and design new products and services to meet market needs;
- timely and efficiently collaborate with OEMs and IDMs to design and develop products and services;
- timely ramp-up production of new products, especially new subsystems, at acceptable yields and costs;
- successfully manage development production cycles; and
- respond effectively to technological changes or product or service announcements by others.

We must achieve design wins to retain our existing customers and to obtain new customers.

New capital equipment typically has a lifespan of several years, and OEMs frequently specify which systems, subsystems, components and instruments are to be incorporated in their equipment. Once incorporated, the OEM will likely maintain that same composition of products for at least several months. IDMs typically establish cleaning, coating, and analytical services as they develop and qualify new chip designs for production. Once a cleaned or coated part has been qualified, the refurbishment processes used to clean or coat the qualified part will likely continue to be used. Accordingly, it is important that our products and services are designed into the new capital equipment and new chip designs (known as a "design win"), to retain our existing customers and to obtain new customers.

We incur technology development and sales expenses with no assurance that our products will ultimately be designed into an OEM's capital equipment or into an IDM's manufacturing process. Further, developing new customer relationships, as well as maintaining and increasing our market share with existing customers, requires a substantial investment of our sales, engineering and management resources without any assurance from prospective customers that they will place orders. We believe that OEMs and IDMs often consider long-term relationships in selecting and placing orders, which could mean we may have difficulty achieving design wins from OEMs and IDMs that are not our current customers.

Fluctuations in foreign currency exchange rates may adversely affect our financial condition and results of operations.

The majority of our international revenues are denominated in U.S. Dollars. Many of the costs and expenses associated with our international operations are paid in foreign currencies, including Chinese Renminbi, Singapore Dollars, Japanese Yen, South Korean Won, Israeli New Shekel, Taiwanese Dollars, Malaysian Ringgits and Euro, and we expect our exposure to these foreign currencies to increase as we increase production in those regions. Changes in exchange rates among these foreign currencies may affect our revenue, cost of revenues, operating margins and tax.

We use derivative instruments, such as foreign currency forward contracts, to hedge certain exposures to fluctuations in foreign currency exchange rates. The use of such hedging activities may not fully offset the adverse financial effects of unfavorable movements in foreign currency exchange rates over the time the hedges are in place.

The market for our stock is subject to significant fluctuation.

The size of our public market capitalization is relatively small, and the average volume of our shares that are traded is relatively low. The market price of our common stock could be subject to significant fluctuations. Among the factors that could affect our stock price are:

- quarterly variations in our operating results;
- our ability to successfully introduce new products and services and manage new product transitions;
- changes in revenue or earnings estimates or publication of research reports by analysts;
- speculation in the press or investment community;
- strategic actions by us, our customers or our competitors, such as acquisitions or restructurings;
- announcements relating to any of our key customers, significant suppliers or the semiconductor manufacturing and capital equipment industry generally;
- the effects of war and terrorist attacks;
- domestic and international economic or political factors unrelated to our performance; and,
- the results of our operations not meeting our guidance or analysts' expectations.

The stock markets in general, and the markets for technology stocks in particular, have experienced extreme volatility that has often been unrelated to the operating performance of particular companies. These broad market fluctuations may adversely affect the trading price of our common stock.

The technology labor market is very competitive, and we must hire, promote and retain key personnel.

Our future success depends in part on the continued service of our key executive officers, as well as our research, engineering, sales, manufacturing and administrative personnel, most of whom are not subject to employment or non-competition agreements. In addition, the competition for qualified personnel in the technology industry is intense, and we operate in geographic locations in which labor markets are particularly competitive.

Our business is particularly dependent on expertise which only a limited number of engineers possess. The loss of any of our key employees and officers, including our Chief Executive Officer, Chief Financial Officer, Chief Operating Officer, any of our Executive or Senior Vice Presidents or any of our other senior managers, or the failure to attract, promote and retain qualified employees, could adversely affect our business. Also, uncertainty and disruption to our organization as a result of executive management transition could divert the executive management's attention away from key areas of our business and have a material adverse effect on our business.

As pandemic related disruptions began to ease, the competition for qualified work force further intensified in 2021 to include jobs that do not require technological expertise. We have not been immune to this heightened competition for available labor force.

Any environmental contamination at any of our production facilities could result in substantial liabilities.

Our facilities use substances regulated under various foreign, federal, state and local environmental laws and regulations. We may not always be aware of, or in compliance with, all environmental laws or regulations, and our failure or inability to comply with existing or future environmental requirements could result in significant remediation and other liabilities, imposition of fines, and suspension of our services and products.

Our business is subject to the risks of earthquakes, fire, power outages, floods, and other catastrophic events, and to interruption by man-made disruptions, such as terrorism.

Our facilities may experience catastrophic losses caused by natural disasters or other causalities, such as earthquakes, storms, floods, fires, public health epidemic, labor disruptions, power outages, terrorist attacks or political unrest, the occurrence of any one of which could disrupt our operations, delay production and shipments, and result in large repair expenses. We have facilities in areas with above average seismic activity, such as our facilities in South San Francisco and Hayward, California, and our Taiwan facilities in Hsinchu and Tainan. We also have experienced fires and extended power outages at our facilities, such as the fire that occurred at a Korean plant operated by our joint venture, Cinos Korea, on September 19, 2018. This risk is further exacerbated by the fact that our insurance policies do not cover the losses caused by earthquakes or other natural disasters or power loss. Our operations in Israel have significantly expanded with our acquisition of Ham-Let whose management, offices and some of its production facilities are located in the north of Israel. The political, economic and security situation in Israel has a direct impact on our operations there, and a state of war in Israel may harm our ability to supply our products to customers.

In addition, our suppliers experiencing natural disasters may not be able to provide sufficient components or raw materials in a timely manner, which can cause disruptions in our operations. For example, in 2011, some of our Japanese suppliers had to temporarily shut down their operations as a result of a severe earthquake followed by a tsunami in northern Japan. Similar events may occur again to our material detriment.

Changes in tax rates or tax assets and liabilities could affect results of operations.

As a global company, we are subject to taxation in the United States and various other countries. Significant judgment is required to determine and estimate worldwide tax liabilities. Our annual and quarterly tax rates could be affected by numerous factors, including changes in the applicable tax laws, amount and composition of pre-tax income in countries with different tax rates, and valuation of our deferred tax assets and liabilities.

We are subject to examinations of our income tax returns by domestic and foreign tax authorities. We regularly assess the likelihood of favorable or unfavorable outcomes resulting from these examinations to determine the adequacy of our provision for income taxes and have reserved for potential adjustments that may result from these examinations. There can be no assurance that any final determination will not be materially different from the treatment reflected in our historical income tax provisions and accruals, which could materially and adversely affect our financial condition and results of operations.

Certain regulations related to conflict minerals could adversely impact our business.

We use conflict minerals in manufacturing our products. As a result, we are required to perform ongoing due diligence on our supply chain and publicly disclose the nature and results of such efforts. Our most recent disclosure was filed on Form SD on January 25, 2022, noting that we could not yet determine whether the conflict minerals we source were, directly or indirectly, used to finance or benefit armed groups in the Democratic Republic of Congo and its adjoining countries. There have been and there will be costs associated with complying with these disclosure requirements to determine the sources of conflict minerals used in our products, and potential changes to products, processes or sources of supply as a consequence of such verification activities. Complying with these rules could adversely affect the sourcing, supply and pricing of materials used in our products and result in substantial additional costs. As there may be only a limited number of suppliers offering "conflict free" conflict minerals, we are not certain that we will be able to obtain the conflict minerals from such suppliers in sufficient quantities or at competitive prices. We may also face reputational challenges if we determine that certain of our products contain minerals not determined to be conflict free or if we are unable to sufficiently verify the origins for all conflict minerals used in our products. If we are unable to comply with these disclosure rules (which themselves may be subject to potential re-formulation by the new administration), we could be subject to enforcement actions by the SEC and liability under the Securities Exchange Act of 1934, which could result in material adverse consequences to our business, as well as significant fines and penalties.

If securities or industry analysts do not publish research or reports about our business, or if they issue an adverse opinion regarding our stock, our stock price and trading volume could decline.

The trading market for our common stock is influenced by the research and reports that industry analysts publish about us or our business. If any of the analysts issue an adverse opinion regarding our stock, our stock price would likely decline. Similarly, if these analysts cease publishing regular reports on us, we could lose visibility in the financial markets, which in turn could cause our stock price or trading volume to decline.

We do not currently intend to pay dividends on our common stock and, consequently, our shareholders' ability to achieve a return on their investment will depend on appreciation in the price of our common stock.

Given our current business plan to invest our earnings to fund our growth, we do not intend on declaring any dividends on UCT's common stock (which ability to do so is also restricted by the terms of our credit agreement). For the foreseeable future, therefore, any return on our shareholders' investment will depend exclusively on the capital appreciation of our common stock.

Item 1B. Unresolved Staff Comments

None.

Item 2. Properties

UCT's headquarters is located in Hayward, California. This facility provides administrative, sales and support, engineering and technology development and manufacturing operations. This lease expires in 2027.

The Company has manufacturing and engineering facilities in California, Texas, Arizona, Israel, China, Malaysia, Singapore, South Korea, United Kingdom, Philippines and Czech Republic. The Company has parts cleaning, analytics and engineering facilities in Colorado, Arizona, California, Oregon, Maine, Texas, Israel, Taiwan, South Korea, Singapore and China. These facilities have leases that expire on various dates through 2031 and are subject to periodic changes. We also own buildings and land that are located in South Korea, China and the United Kingdom. We believe that our existing facilities are well-maintained and in good operating condition.

Item 3. Legal Proceedings

From time to time, we are subject to various legal proceedings and claims, either asserted or unasserted, that arise in the ordinary course of business. Although the outcome of the various legal proceedings and claims cannot be predicted with certainty, we have not had a history of outcomes to date that have been material to our statement of operations and do not believe that any of these proceedings or other claims will have a material adverse effect on our consolidated financial condition or results of operations.

Item 4. Mine Safety Disclosures

Not applicable.

PART II

Item 5. Market for Registrant's Common Equity, Related Stockholder Matters, and Issuer Purchases of Equity Securities

Stock Exchange Listing

Our common stock has been traded on the NASDAQ Global Market under the symbol "UCTT" since March 25, 2004. As of February 22, 2022, there were five holders of record of UCTT common stock.

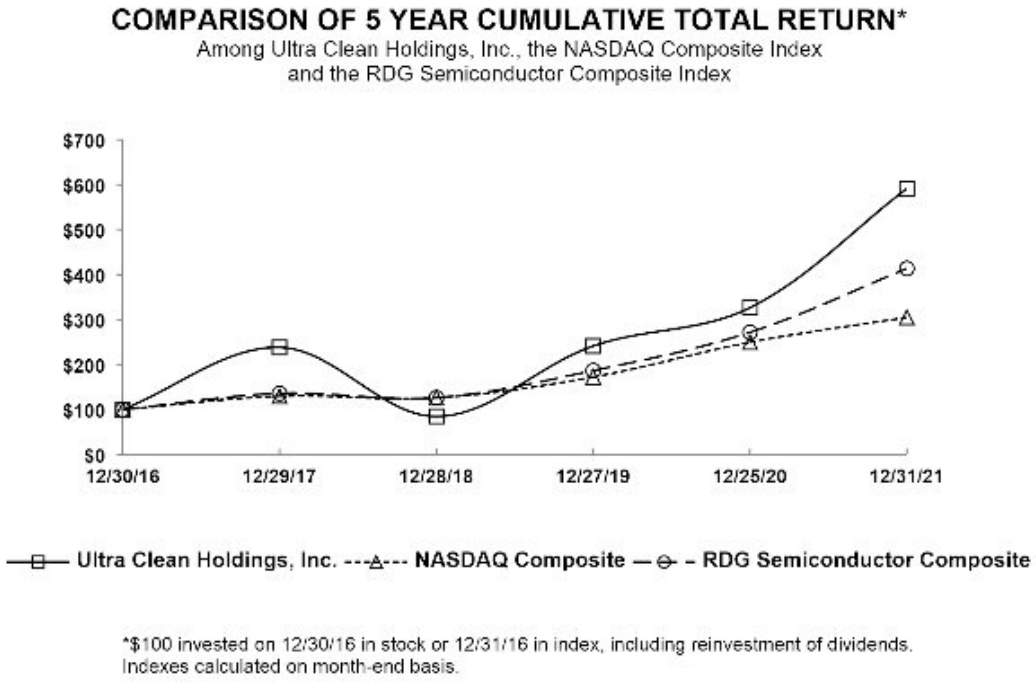
Dividends on Common Stock

To date, we have not declared or paid cash dividends to our UCT stockholders and we do not intend to do so for the foreseeable future in order to retain earnings for use in our business. Our credit facility also limits our ability to pay dividends.

Stock Performance Graph

The following stock performance graph and related information shall not be deemed "soliciting material" or "filed" with the Securities and Exchange Commission, nor shall such information be incorporated by reference into any future filings under the Securities Act of 1933 or the Exchange Act, each as amended, except to the extent that we specifically incorporate it by reference into such filing.

The following stock performance graph compares the cumulative total stockholder returns during the period from December 30, 2016 to December 31, 2021, of our common stock to the NASDAQ Composite Index and the RDG Semiconductor Composite Index. The comparison assumes $100 was invested on December 30, 2016, in our common stock and in each of the foregoing indices. The stock performance shown on the following graph represents historical stock performance and is not necessarily indicative of future stock price performance.



The following table sets forth for the periods indicated the high and low sales prices per share of our common stock as reported by the NASDAQ Global Market:

	High	Low
Fiscal year 2020		
First quarter	$ 30.00	$ 11.79
Second quarter	$ 24.86	$ 12.37
Third quarter	$ 31.10	$ 19.08
Fourth quarter	$ 37.02	$ 21.06
Fiscal year 2021		
First quarter	$ 59.42	$ 29.92
Second quarter	$ 65.33	$ 44.18
Third quarter	$ 56.24	$ 39.00
Fourth quarter	$ 60.84	$ 40.97

Recent Sales of Unregistered Sales of Equity Securities

None.

Purchase of Equity Securities by the Issuer and Affiliated Purchasers

None.

Item 6. Reserved

Item 7. Management's Discussion and Analysis of Financial Condition and Results of Operations

This section and other parts of this Annual Report on Form 10-K contain forward-looking statements within the meaning of the Private Securities Litigation Reform Act of 1995. These statements involve risks and uncertainties. Forward-looking statements can also be identified by words such as *"expects," "anticipates," "targets," "goals," "projects," "intends," "plans," "believes," "seeks," "estimates," "continues," "may," "will be," "will continue," "will likely results,* and similar terms. Forward-looking statements are not guarantees of future performance and our actual results may differ significantly from the results discussed in the forward-looking statements. Factors that might cause such differences include, but are not limited to, those discussed in "Item 1A — Risk Factors" above. The following discussion should be read in conjunction with the Consolidated Financial Statement and notes thereto included in Item 8 of this report. We assume no obligation to revise or update any forward-looking statements for any reason, except as required by law.

Overview

Ultra Clean Holdings, Inc., ("UCT", the "Company" or "We") is a leading developer and supplier of critical subsystems, components and parts, and ultra-high purity cleaning and analytical services primarily for the semiconductor industry. UCT offers its customers an integrated outsourced solution for major subassemblies, improved design-to-delivery cycle times, design for manufacturability, prototyping and part and component manufacturing, as well as tool chamber parts cleaning and coating, and micro-contamination analytical services. We report results for two operating segments: Products and Services (formerly known as "SPS" and "SSB", respectively). Our Products segment primarily designs, engineers and manufactures production tools, components and parts, and modules and subsystems for the semiconductor and display capital equipment markets. Products include chemical delivery modules, frame assemblies, gas delivery systems, fluid delivery systems, precision robotics, process modules as well as other high-level assemblies. Our Services segment provides ultra-high purity parts cleaning, process tool part recoating, surface encapsulation and high sensitivity micro contamination analysis primarily for the semiconductor device makers and wafer fabrication equipment ("WFE") markets.

We ship a majority of our products and provide most of our services to U.S. registered customers with locations both in and outside the U.S. In addition to U.S. manufacturing and service operations, we manufacture products and provide parts cleaning and other related services in our Asian, Europe and Middle East ("EMEA") facilities to support local and U.S. based customers. We conduct our operating activities primarily through our subsidiaries.

Over the long-term, we believe the semiconductor market we serve will continue to grow due to multi-year industry demand from a broad range of drivers including mobile demand driven by 5G, new CPU architectures that enable higher performance servers necessary for cloud, artificial intelligence ("AI") and Machine Learning applications. We also believe that semiconductor original equipment manufacturers ("OEM") are increasingly relying on partners like UCT to fulfill their expanding capacity requirements. Additionally, our Services business is benefiting as device manufacturers rely on precision cleaning and coating to achieve ever more complex devices.

On March 31, 2021, we completed the acquisition of Ham-Let (Israel-Canada) Ltd. ("Ham-Let"), a public company organized under the laws of the State of Israel (not a U.S. registrant), pursuant to an Agreement and Plan of Merger, for approximately $362.9 million. Ham-Let engages in the development, manufacturing and marketing of innovative control valves, fittings, and hoses for the control and monitoring of industrial systems in a variety of markets, including the Semiconductor market. These products are primarily used in ultra clean gas transportation systems as well as other systems for the transmission of liquids and gases. The Company's primary reason for this acquisition was to broaden UCT's relevance to the semiconductor equipment market and to provide access to a new set of customers in the semiconductor fab infrastructure market. Ham-Let operations are conducted and reported under our products segment.

During April 2021, we completed an underwritten public offering of 3.7 million shares of our common stock, in which we received net proceeds of $192.8 million, after deducting the underwriting discounts and offering expenses. We intend to use the net proceeds from this offering for general corporate purposes, which may include working capital, sales and marketing activities, product development, general and administrative matters, and capital expenditures. We may use a portion of the net proceeds to acquire complementary businesses, products, services, or technologies, although we have no agreements, commitments, or plans for any specific acquisitions at this time.

Critical Accounting Estimates

Our Consolidated Financial Statements have been prepared in accordance with accounting principles generally accepted in the United States, which require us to make estimates and judgments that affect the reported amounts of assets, liabilities, revenue and expenses and related disclosure at the date of our Consolidated Financial Statements. On an on-going basis, we evaluate our estimates and judgments, including those related to inventories, income taxes, business combinations and goodwill, intangible assets and long-lived assets. We base our estimates and judgments on historical experience and on various other factors that we believe to be reasonable under the circumstances, the results of which form the basis of our judgments about the carrying values of assets and liabilities that are not readily apparent from other sources. Actual results may differ from these estimates. We consider certain accounting policies related to revenue recognition, inventory valuation, accounting for income taxes, business combinations, valuation of goodwill, intangible assets and long-lived assets to be critical policies due to the estimates and judgments involved in each.

Revenue Recognition

Our revenues for fiscal years 2021, 2020 and 2019, were highly concentrated with a small number of OEM customers in the semiconductor capital equipment industry. We recognize revenue when promised goods or services (performance obligations) are transferred to a customer in an amount that reflects the consideration to which we expect to be entitled in exchange for those goods or services. We perform the following five steps to determine when to recognize revenue:

1. Identification of the contract(s) with customers – Our standard arrangement for our customers includes a signed purchase order or contract, no right of return of delivered products and no customer acceptance provisions. We assess collectability based on the creditworthiness of the customer and past transaction history. We perform on-going credit evaluations of, and do not require collateral from, our customers.
2. Identification of the performance obligations in the contract – Our performance obligations include delivery of promised goods or services.
3. Determination of the transaction price – The transaction price of our contracts with customers may include both fixed and variable consideration. We include variable consideration in the transaction price to the extent that it is probable that a significant reversal of revenue will not occur when the uncertainty associated with the variable consideration is subsequently resolved. We generally invoice our customers upon shipment of goods and completion of services with payment due within 30 to 90 days after issuance.
4. Allocation of the transaction price to the performance obligations in the contract – For contracts that contain multiple performance obligations, we allocate the transaction price to the performance obligations on a relative standalone selling price basis. For contracts with multiple performance obligations, we allocate the contract's transaction price to each performance obligation using the relative standalone selling price of each distinct good or service in the contract.
5. Recognition of revenue when, or as, a performance obligation is satisfied – We recognize revenue from products sold at a point in time when we have satisfied our performance obligation by transferring control of the goods to the customer, which typically occurs at shipment or delivery. Revenue from service agreements is recognized upon completion of the services, which typically occurs upon shipment to the customer.

Inventory Valuation

We write down the carrying value of our inventory to net realizable value for estimated obsolescence or unmarketable inventory in an amount equal to the difference between the cost of inventory and its estimated realizable value based upon inventory age and assumptions about future demand and market conditions. We assess the valuation of all inventories, including raw materials, work-in-process, finished goods and spare parts on a periodic basis.

Obsolete inventory or inventory in excess of our estimated usage is written down to its estimated market value less costs to sell, if less than its cost. The inventory write-downs are recorded as an inventory valuation allowance established on the basis of obsolete inventory or specifically identified inventory in excess of established usage. Inherent in our estimates of demand and market value in determining inventory valuation are estimates related to economic trends, future demand for our products. If actual demand and market conditions are less favorable than our projections, additional inventory write-downs may be required. If the inventory value is written down to its net

realizable value, and subsequently there is an increased demand for the inventory at a higher value, the increased value of the inventory is not realized until the inventory is sold either as a component of a subsystem or as separate inventory. For fiscal years 2021, 2020 and 2019, we wrote down inventories of $6.1 million, $3.4 million, and $2.5 million, respectively.

Accounting for Income Taxes

The determination of our tax provision is highly dependent upon the geographic composition of worldwide earnings and tax regulations governing each region and is subject to judgments and estimates. Management carefully monitors the changes in many factors and adjusts the effective tax rate as required.

We must assess the likelihood that we will be able to recover our deferred tax assets. If recovery is not likely, we must increase our provision for taxes by recording a valuation allowance to reduce our deferred tax assets to the amount that is more likely than not to be recoverable. In determining whether the realization of these deferred tax assets may be impaired, we make judgments with respect to whether we are likely to generate sufficient future taxable income to realize these assets. In order to reverse a valuation allowance, accounting principles generally accepted in the United States of America suggest that we review our recent cumulative income/loss as well as determine our ability to generate sufficient future taxable income to realize our net deferred tax assets. As of December 31, 2021, we maintained full valuation allowances on our U.S. federal and state deferred tax assets in the amount of $30.9 million as we believe it is more likely than not that these deferred tax assets will not be realized.

In addition, the calculation of tax liabilities involves significant judgment in estimating the impact of uncertainties in the application of complex tax laws. We recognize liabilities for uncertain tax positions based on a two-step process. The first step is to evaluate the tax position for recognition by determining if the weight of available evidence indicates that it is more likely than not that the position will be sustained on audit, including resolution of related appeals or litigation processes, if any. The second step is to measure the tax benefit as the largest amount that is more than 50% likely to be realized upon ultimate settlement. Resolution of these uncertainties in a manner inconsistent with our expectations could have a material impact on the results of our operations and financial position. We believe we have adequately reserved for our uncertain tax positions; however, no assurance can be given that the final tax outcome of these matters will not be different than what we expect. We adjust these reserves in light of changing facts and circumstances, such as the closing of a tax audit or the refinement of an estimate. To the extent that the final tax outcome of these matters is different than the amounts recorded, such differences will impact the provision for income taxes in the period in which such determination is made. The provision for income taxes includes the impact of reserve provisions and changes to reserves that are considered appropriate, as well as the related net interest.

Business Combinations

In accordance with accounting for business combinations, we allocate the purchase price of acquired companies to the identified tangible and intangible assets acquired and liabilities assumed based on their estimated fair values. We may engage third-party valuation firms to assist management in reviewing management's identification and determination of the fair values of acquired intangible assets such as customer relationships and tradenames. Such valuations require management to make significant estimates and assumptions. Management makes estimates of fair value based upon assumptions believed to be reasonable. These estimates are based on historical experience and information obtained from the management of the acquired companies and are inherently uncertain.

Goodwill, Intangibles Assets, and Long-lived Assets

Goodwill is measured as the excess of the cost of an acquisition over the sum of the amounts assigned to identifiable assets acquired less liabilities assumed.

We evaluate our goodwill and indefinite life tradename for impairment, at the reporting unit level, on an annual basis, and whenever events or changes in circumstances indicate that the carrying value may not be fully recoverable. In addition, we evaluate our identifiable intangible assets and other long-lived assets for impairment whenever events or changes in circumstances indicate that the carrying amount of an asset may not be recoverable. Factors we consider important which could trigger an impairment review include the following:

- Significant changes in the manner of our use of the acquired assets or the strategy of our overall business;

- Significant negative changes in revenue of specific products or services;
- Significant negative industry or economic trends; and
- Significant decline in our stock price for a sustained period.

We continually apply judgment when performing these evaluations and continuously monitor for events and circumstances that could negatively impact the key assumptions in determining fair value, including long-term revenue growth projections, undiscounted cash flows, discount rates, recent market valuations from transactions by comparable companies, volatility in our market capitalization and general industry, market and macroeconomic conditions. It is possible that changes in such circumstances, or in the variables associated with the judgments, assumptions and estimates used in assessing fair value, would require us to record a non-cash impairment charge.

Results of Operations

Fiscal Year

Our fiscal year is the 52- or 53-week period ending on the Friday nearest December 31. Fiscal year 2021, contained 53 weeks. Fiscal years 2020, and 2019, each contained 52 weeks.

A discussion regarding our financial condition and results of operations for fiscal 2021, compared to fiscal 2020, is presented below. The results of operations for 2021, and the discussion below reflect nine months of activity resulting from the acquisition of Ham-Let.

A discussion regarding our financial condition and results of operations for fiscal 2020, compared to fiscal 2019, can be found under Item 7 in our Annual Report on Form 10-K for the fiscal year ended December 25, 2020, filed with the SEC on February 23, 2021, which is available on the SEC's website at www.sec.gov and our Investor Relations website at ww.uct.com/investors.

Discussion of Results of Operations

Revenues

	Years Ended				
Revenues by Segment (Dollars in millions)	**December 31, 2021**	**Percent Change**	**December 25, 2020**	**Percent Change**	**December 27, 2019**
Products	$ 1,803.9	59.5 %	$ 1,131.2	34.5 %	$ 840.8
Services	297.7	11.3 %	267.4	18.6 %	225.4
Total Revenues	$ 2,101.6	50.3 %	$ 1,398.6	31.2 %	$ 1,066.2
Products as a percentage of total revenues	*85.8%*		*80.9%*		*78.9%*
Services as a percentage of total revenues	*14.2%*		*19.1%*		*21.1%*

Total Products revenue increased $672.7 million in fiscal year 2021 over fiscal year 2020, primarily due to an increase in customer demand in the semiconductor industry, in particular, the wafer fabrication equipment industry and in part to the inclusion of Ham-Let which contributed $187.5 million of revenues for fiscal year 2021.

Total Services revenue increased $30.3 million in fiscal year 2021 over fiscal year 2020, primarily due to increases in demand across our entire customer base.

Revenues by Geography (Dollars in millions)	Years Ended December 31, 2021	Percent Change	December 25, 2020	Percent Change	December 27, 2019
United States	$ 734.4	26.3 %	$ 581.6	13.8 %	$ 510.9
International	1,367.2	67.3 %	817.0	47.1 %	555.3
Total Revenues	$ 2,101.6	50.3 %	$ 1,398.6	31.2 %	$ 1,066.2
Unites States as a percentage of total revenues	*34.9%*		*41.6%*		*47.9%*
International as a percentage of total revenues	*65.1%*		*58.4%*		*52.1%*

On a geographic basis, revenue represents products shipped from or services performed in our U.S. and international locations. Both U.S. and foreign revenues increased in absolute terms and as a percentage of total revenue in fiscal 2021 over fiscal 2020, due to an overall global increase in semiconductor and general industry demand.

Cost of Revenues

Cost of Revenues by Segment (Dollars in millions)	Years Ended December 31, 2021	Percent Change	December 25, 2020	Percent Change	December 27, 2019
Products	$ 1,478.7	58.2 %	$ 934.7	30.0 %	$ 719.0
Services	192.9	12.1 %	172.1	14.4 %	150.4
Total Cost of Revenues	$ 1,671.6	51.0 %	$ 1,106.8	27.3 %	$ 869.4
Products as a percentage of total Products revenues	*82.0%*		*82.6%*		*85.5%*
Services as a percentage of total Services revenues	*64.8%*		*64.4%*		*66.7%*

Total cost of revenues increased $564.8 million in fiscal year 2021 over fiscal year 2020, due to higher demand for both Products and Services.

Cost of products revenues consists of purchased materials, direct labor and manufacturing overhead. Cost of products revenues increased $544.0 million for fiscal 2021 compared to fiscal 2020, due to the inclusion of Ham-Let and higher volume of sales driving increased material costs of $427.0 million including $10.1 million of materials costs resulting from the step-up in value of Ham-Let's inventories. Also contributing to the increase in cost of products revenues, were higher direct labor spending of $272.2 million and higher overhead costs of $44.8 million including $2.0 million of intangible amortization resulting from the acquisition of Ham-Let.

Cost of services revenues consists of direct labor, manufacturing overhead and materials (such as chemicals, gases and consumables). Cost of services revenues increased $20.8 million in fiscal 2021 compared to the prior year driven by higher volumes of service orders, resulting in an increase in labor costs of $7.1 million the largest component of total cost of services revenues, higher material costs of $4.7 million and higher overhead costs of $9.0 million driven by higher service orders.

Gross Margin

(Dollars in millions) Dollar by Segment	Years Ended December 31, 2021	Percent Change	December 25, 2020	Percent Change	December 27, 2019
Products	$ 325.2	65.5 %	$ 196.5	61.3 %	$ 121.8
Services	104.8	10.0 %	95.3	27.1 %	75.0
Gross profit	$ 430.0	47.4 %	$ 291.8	48.3 %	$ 196.8
Percentage by Segment					
Products	18.0%		17.4%		14.5%
Services	35.2%		35.6%		31.5%
Total Company	20.5%		20.9%		18.5%

Products gross margin increased in fiscal year 2021 over fiscal year 2020, due primarily to higher volume, and the favorable mix of higher margin products. Services gross margin increased in fiscal year 2021, over fiscal year 2020, due to direct labor efficiencies along with lower facility-related costs.

Research and Development

(Dollars in millions)	Years Ended December 31, 2021	Percent Change	December 25, 2020	Percent Change	December 27, 2019
Research and development	$ 24.5	65.5 %	$ 14.8	1.4 %	$ 14.6
Research and development as a percentage of total revenues	1.2%		1.1%		1.4%

Research and development expenses consist primarily of activities related to new component testing and evaluation, test equipment and fixture development, product design, the advancement of cleaning and coating and analytical processes, and other product-development activities. Research and development expenses increased $9.7 million in fiscal year 2021 compared to fiscal year 2020, primarily due to the inclusion of Ham-Let's research and development activities and an increase in personnel-related expenses associated with an overall increase in headcount.

Sales and Marketing

(Dollars in millions)	Years Ended December 31, 2021	Percent Change	December 25, 2020	Percent Change	December 27, 2019
Sales and marketing	$ 48.2	92.0 %	$ 25.1	12.1 %	$ 22.4
Sales and marketing as a percentage of total revenues	2.3%		1.8%		2.1%

Sales and marketing expenses consist primarily of salaries and commissions paid to our sales employees, salaries paid to our engineers who work with sales and service employees to help determine the components and configuration requirements for new products and other costs related to the sales of our products. Sales and marketing expenses increased $23.1 million in fiscal year 2021 over fiscal year 2020, primarily due to the inclusion of Ham-Let's sales and marketing activities and an increase in personnel-related costs driven by higher headcount and bonuses.

General and Administrative

(Dollars in millions)	Years Ended December 31, 2021	Percent Change	December 25, 2020	Percent Change	December 27, 2019
General and administrative	$ 171.6	31.5 %	$ 130.5	0.5 %	$ 129.9
General and administrative as a percentage of total revenues	8.2%		9.3%		12.2%

General and administrative expenses increased $41.1 million in fiscal year 2021 over fiscal year 2020, due to the inclusion of Ham-Let's general and administrative activities and higher personnel-related expenses driven by higher headcount.

Interest and Other Income (Expense), net

	Years Ended				
(Dollars in millions)	December 31, 2021	Percent Change	December 25, 2020	Percent Change	December 27, 2019
Interest income	$ 0.4	(55.6) %	$ 0.9	125.0 %	$ 0.4
Interest expense	$ (24.2)	43.2 %	$ (16.9)	(33.7) %	$ (25.5)
Other income (expense), net	$ (7.6)	33.3 %	$ (5.7)	137.5 %	$ (2.4)

Interest expense increased $7.3 million in fiscal year 2021 over fiscal year 2020 due to a higher debt balance resulting from the acquisition of Ham-Let, partially offset by lower interest rates resulting from lower LIBOR rates.

Other income (expense), net, increased $1.9 million in fiscal year 2021 over fiscal year 2020 primarily due to an increase of $12.1 million in the fair value of forward hedge contracts related to the non-U.S. Dollar-denominated acquisition price of Ham-Let and a $3.6 million increase in foreign exchange losses. These increases were offset by insurance proceeds of $7.3 million received for the reimbursement of our losses in the Cinos Korea fire and by the absence of $6.5 million loss from the change in fair value of the Cinos Korea common stock purchase obligation in fiscal 2021.

Provision for Income Taxes

	Years Ended				
(Dollars in millions)	December 31, 2021	Percent Change	December 25, 2020	Percent Change	December 27, 2019
Provision for income taxes	$ 27.9	44.6 %	$ 19.3	93.0 %	$ 10.0
Effective tax rate	18.1%		19.3%		415.9%

The change in respective tax rates reflects, primarily, changes in the geographic distribution of our worldwide earnings. For fiscal year 2021, our effective tax rate was lower than the federal statutory rate of 21% primarily due to favorable effects of the geographic distribution of our worldwide earnings in foreign jurisdictions with lower effective tax rates.

For the year ended December 31, 2021, the Company concluded that a full valuation allowance against its U.S. federal and state deferred tax assets continues to be necessary. The Company also concluded that some of its foreign deferred tax assets acquired as part of the QGT and Ham-Let acquisitions required a valuation allowance. As of December 31, 2021, the total U.S. and foreign valuation allowances for deferred tax assets were $27.5 million and $3.4 million, respectively.

Our ability to realize deferred tax assets depends on our ability to generate sufficient future taxable income. In assessing our future taxable income, we have considered all sources of future taxable income available to realize our deferred tax assets, including the taxable income from future reversal of existing temporary differences, carry forwards, and tax-planning strategies. If changes occur in the assumptions underlying our tax planning strategies or in the scheduling of the reversal of our deferred tax liabilities, the valuation allowance may need to be adjusted in the future.

The Company remitted foreign earnings from one of its subsidiaries in Singapore in 2021. The Company has no plans to remit foreign earnings other than possibly from a particular Singapore subsidiary. We may change our intent to reinvest certain of our undistributed foreign earnings indefinitely, which could require us to accrue or pay taxes on some or all of these undistributed earnings.

Liquidity and Capital Resources

Cash and cash Equivalents

The following table summarizes our cash and cash equivalents:

(In millions)	Years Ended December 31, 2021	December 25, 2020	Increase
Total cash and cash equivalents	$ 466.5	$ 200.3	$ 266.2

The increase in cash and cash equivalents in fiscal year 2021, compared to fiscal year 2020, was primarily due to the cash provided by operating activities of $211.6 million and financing activities of $460.8 million primarily offset by the $404.8 million used in investing activities related to the Ham-Let acquisition.

Cash Flows

(In millions)	Years Ended December 31, 2021	December 25, 2020	December 27, 2019
Operating activities	$ 211.6	$ 97.3	$ 121.0
Investing activities	(404.8)	(29.8)	(49.2)
Financing activities	460.8	(31.1)	(53.4)
Effects of exchange rate changes on cash and cash equivalents	(1.4)	1.4	-
Net increase in cash and cash equivalents	$ 266.2	$ 37.8	$ 18.4

Our primary cash inflows and outflows were as follows:

- We generated net cash from operating activities of $211.6 million in fiscal year 2021, compared to $97.3 million in fiscal year 2020. The $114.3 million increase was driven by an increase of $23.7 million in non-cash items, an increase of $46.0 million in net income and an increase of $44.6 million in the net change from operating assets and liabilities.
- The major contributors to the net change in operating assets and liabilities, net of effects of acquisition, in fiscal year 2021 were as follows:
  - Accounts receivable increased $53.0 million primarily due to the increase in revenues and the timing of collections.
  - Inventories increased $125.1 million due primarily to the customer demand outlook for 2022.
  - Accounts payable and income taxes payable increased $170.6 million and $7.7 million respectively, primarily due to the increases in inventories due to future demand and the timing of payments.
- Cash used in investing activities was $404.8 million in fiscal year 2021 compared to $29.8 million in fiscal year 2020. During fiscal year 2021, net cash used for investing activities primarily consisted of $353.2 million related to an acquisition and $59.3 million for purchases of property, plant and equipment. During fiscal year 2020, net cash used for investing activities primarily consisted of $36.4 million for purchases of property, plant and equipment, offset by $6.6 million in proceeds from insurance related to the Cinos Korea fire in 2018.
- Cash provided by financing activities was $460.8 million in fiscal year 2021 compared to cash used in financing activities of $31.1 million in fiscal year 2020. During fiscal year 2021, net cash provided by financing activities primarily consisted of new borrowings of $415.2 million, proceeds from issuance of common stock of $193.6 million, partially offset with repayment on debt and debt issuance costs of $140.7 million and $7.3 million of taxes paid upon the vesting of restricted stock units. During fiscal year 2020, net cash used in financing activities primarily consisted of $28.8 million, net of debt repayments and $1.5 million of taxes paid upon the vesting of restricted stock units.

We believe we have sufficient capital to fund our working capital needs, satisfy our debt obligations, maintain our existing capital equipment, purchase new capital equipment and make strategic acquisitions from time to time. As of December 31, 2021, we had cash and cash equivalents of $466.5 million compared to $200.3 million as of December 25, 2020. Our cash and cash equivalents, cash generated from operations and borrowings under our term loan described below, were our principal sources of liquidity as of December 31, 2021.

Our subsidiary Ham-Let, has an existing factoring arrangement with a financial institution in which a portion of its accounts receivable are sold on a none recourse basis. For the nine months ended December 31, 2021, Ham-Let factored $30.6 million under this arrangement.

We anticipate that our existing cash and cash equivalents balance and operating cash flow will be sufficient to service our indebtedness and meet our working capital requirements and technology development projects for at least the next twelve months. The adequacy of these resources to meet our liquidity needs beyond that period will depend on our growth, the size and number of any acquisitions, the state of the worldwide economy, our ability to meet our financial covenants with our credit facility, the cyclical expansion or contraction of the semiconductor capital equipment industry and the other industries we serve and capital expenditures required to meet possible increased demand for our products.

In order to expand our business or acquire additional complementary businesses or technologies, we may need to raise additional funds through equity or debt financings. If required, additional financing may not be available on terms that are favorable to us, if at all. If we raise additional funds through the issuance of equity or convertible debt securities, our stockholders' equity interest will be diluted and these securities might have rights, preferences and privileges senior to those of our current stockholders. We may also require the consent of our new lenders to raise additional funds through equity or debt financings. No assurance can be given that additional financing will be available or that, if available, such financing can be obtained on terms favorable to our stockholders and us.

In 2017, we determined that a portion of the current year and future year earnings of one of our China subsidiaries may be remitted in the future to one of our foreign subsidiaries outside of mainland China and, accordingly, we provided for the related withholding taxes in our Consolidated Financial Statements. As of December 31, 2021, we had undistributed earnings of approximately $449.3 million from our foreign subsidiaries that are indefinitely invested outside of the U.S. As of December 31, 2021, we have cash of approximately $351.1 million in our foreign subsidiaries.

Borrowing Arrangements

	December 31, 2021		December 25, 2020	
(Dollars in millions)	**Amount**	**Weighted-Average Interest Rate**	**Amount**	**Weighted-Average Interest Rate**
U.S. Term Loan	$ 555.1	3.9%	$ 275.0	4.4%
Cinos China Credit Facilities	1.4	4.1%	1.9	3.1%
Ham-Let	8.9	1.0%	—	—
Debt issuance costs	(13.4)	—	(7.9)	—
	$ 552.0		$ 269.0	

In August 2018, the Company entered into a Credit Agreement with Barclays Bank that provided a Term Loan, a Revolving Credit Facility and a Letter of Credit Facility (the "Credit Facility"). UCT and certain of its subsidiaries have agreed to secure all of their obligations under the Credit Facility by granting a first priority lien in substantially all of their respective personal property assets (subject to certain exceptions and limitations). In August 2018, the Company borrowed $350.0 million under the Term Loan and used the proceeds, together with cash on hand, to finance the acquisition of QGT.

On March 31, 2021, the Company entered into a Second Amendment (the "Second Amendment") to the Credit Agreement to, among other things, (i) refinance and reprice $272.8 million of existing Term Loan borrowings that will remain outstanding and (ii) obtain a $355.0 million senior secured incremental term loan B facility ((i) and (ii) collectively the "Term Loan") with Barclays Bank, which increased the amount of term loan indebtedness outstanding under the Company's Credit Facility.

The Term Loan has a maturity date of August 27, 2025, with monthly interest payments in arrears, quarterly principal payments of 0.625% of the outstanding principal balance thereof as of March 31, 2021, with the remaining principal paid upon maturity. Under the Credit Facility, the Company may elect that the Term Loan bear interest at a rate per annum equal to either (a) "ABR" (as defined in the Credit Agreement), plus the applicable margin or (b) the "Eurodollar Rate" (as defined in the Credit Agreement), based on LIBOR, plus the applicable margin. The applicable margin for the Term Loan is equal to a rate per annum to either (i) at any time that the Company's

corporate family rating is Ba3 (with a stable outlook) or higher from Moody's and BB- (with a stable outlook) or higher from S&P, (x) 3.50% for such Eurodollar term loans and (y) 2.50% for such ABR term loans or (ii) at all other times, (x) 3.75% for such Eurodollar term loans and (y) 2.75% for such ABR term loans. Interest on the Term Loan is payable on (1) in the case of such ABR term loans, the last day of each calendar quarter and (2) in the case of such Eurodollar term loans, the last day of each relevant interest period and, in the case of any interest period longer than three months, on each successive date three months after the first day of such interest period. On March 29, 2021, the Company elected that the Term Loan outstanding as of March 31, 2021, accrue interest based on the "Eurodollar Rate" for an initial interest period of one month. As of March 31, 2021, the applicable margin with respect to the Term Loan facility was 3.75%. Pursuant to the Second Amendment to the Credit Agreement, the Credit Facility contains customary LIBOR replacement provisions in the event LIBOR is discontinued. At December 31, 2021, the Company had an outstanding amount under the Term Loan of $555.1 million, gross of unamortized debt issuance costs of $13.4 million. As of December 31, 2021, the interest rate on the outstanding Term Loan was 3.9%.

The Credit Agreement requires the Company to maintain certain financial covenants including a consolidated fixed charge coverage ratio (as defined in the Credit Agreement) as of the last day of any fiscal quarter of at least 1.25 to 1.00, and a consolidated leverage ratio (as defined in the Credit Agreement) as of the last day of any fiscal quarter of no greater than 3.75 to 1.00. The Company was in compliance with all financial covenants during the year ended December 31, 2021.

In 2020, Cinos China amended its existing Credit Agreement and entered into two additional Credit Agreements with a local bank that provide a term loan of $1.9 million with maturity date through September 23, 2022 and interest rates of 4.1%. As of December 31, 2021, Cinos China had $1.4 million outstanding amount of under this credit facility.

Ham-Let has credit facilities and loan agreements with various financial institutions. As of December 31, 2021, Ham-Let had $8.9 million of outstanding debt with interest rate of 1.0%

The Revolving Credit Facility has an initial available commitment of $65.0 million and a maturity date of August 27, 2023. The Company pays a quarterly commitment fee in arrears equal to 0.25% of the average daily available commitment outstanding. As of December 31, 2021, the Company had no outstanding amount under this revolving credit facility.

The Letter of Credit Facility has an initial available commitment of $50.0 million and a maturity date of August 27, 2023. The Company pays quarterly in arrears a fee equal to 2.5% (subject to certain adjustments to the Term Loan) of the dollar equivalent of all outstanding letters of credit, and a fronting fee equal to 0.125% of the undrawn and unexpired amount of each letter of credit. As of December 31, 2021, the Company had $2.4 million of outstanding letters of credit with beneficiaries such as landlords of certain facility leases, insurance providers and government agencies making up the majority of the outstanding balance. The remaining available commitments are $47.6 million on the Letter of Credit Facility.

In 2020, Cinos China amended its existing Credit Agreement and entered into two additional Credit Agreements with a local bank that provide Revolving Credit Facilities for a total available commitment of $1.0 million with various maturity dates through September 23, 2022 and interest rates of 2.0%. As of December 31, 2021, Cinos China had no outstanding amount of under this credit facility.

Cinos Korea has Credit Agreements with various banks that provide Revolving Credit Facilities for a total available commitment of 600.0 million Korean Won (approximately $0.5 million) with annual renewals beginning from June 2022 and interest rate of 2.9%. During the fiscal year ended December 31, 2021, borrowings under these Revolving Facilities were insignificant and no amounts were outstanding as of December 31, 2021.

Fluid delivery systems ("FDS") has a credit agreement with a local bank in the Czech Republic that provides for a revolving credit facility in the aggregate of up to 6.0 million euros (approximately $6.8 million). As of December 31, 2021, the Company had no outstanding amount under this revolving credit facility.

As of December 31, 2021, the Company's total bank debt was $552.0 million, net of unamortized debt issuance costs of $13.4 million. As of December 31, 2021, we had $112.6 million, $6.8 million, $0.5 million and $1.0 million available to draw from our revolving credit facilities in the U.S., Czech Republic, South Korea and China, respectively.

The fair value of our long-term debt was based on Level 2 inputs, and fair value was determined using quoted prices for similar liabilities in inactive markets. The carrying value of our long-term debt approximates fair value.

Capital Expenditures

Capital expenditures were $69.5 million for the year ended December 31, 2021, primarily attributable to the expansion of our South Korea, Singapore, Czech Republic and certain U.S. facilities and our ERP system.

Contractual Obligations

The Company had commitments to various third parties to purchase inventories totaling approximately $562.5 million on December 31, 2021.

In conjunction with the sale of our products in the ordinary course of business, we provide standard indemnification against certain liabilities to our customers, which may include claims of losses by their own customers resulting out of property damages, bodily injuries or deaths, or infringement of intellectual property rights by our products. Our potential liability arising out of intellectual property infringement claims by any third party is generally uncapped. As of December 31, 2021, we have not incurred any significant costs to defend lawsuits or settle claims related to these indemnification arrangements. As a result, we believe the estimated fair value of these arrangements is minimal.

During the periods presented, we do not have unconsolidated entities or financial partnerships, such as entities often referred to as structured finance or special purpose entities, which would have been established for the purpose of facilitating off-balance sheet arrangements or other contractually narrow or limited purposes.

Recently Issued and Adopted Accounting Pronouncement

For a description of recent accounting pronouncements, including the expected dates of adoption and estimated effects, if any, on UCT's Consolidated Financial Statements, see Note 1, "Organization and Significant Accounting Policies," of the Notes to Consolidated Financial Statements.

Item 7A. Quantitative and Qualitative Disclosures About Market Risk

We are exposed to financial market risks, including credit risk, foreign currency exchange rate risk and interest rate risk.

Credit Risk

A substantial majority of our trade receivables are derived from sales to OEMs. We believe the net accounts receivable balances from our three largest customers (44.9% as of December 31, 2021) does not represent a significant credit risk, based on cash flow forecasts, balance sheet analysis, and past collection experience. For more information about the customers that represent our accounts receivable balance, see Note 1, Organization and Significant Accounting Policies.

We have adopted credit policies and standards intended to accommodate industry growth and inherent risk. We believe credit risks are moderated by the financial stability of our major customers. We assess credit risk through quantitative and qualitative analysis. From these analyses, we establish shipping and credit limits and determine whether we will seek to use one or more credit support protection devices, such as obtaining a parent guarantee, prepayment or standby letter of credit.

Foreign Currency Exchange Rate Risk

We operate in international markets, which expose us to market risk associated with foreign currency exchange rate fluctuations between the U.S. Dollar and various foreign currencies. Historically, the majority of our revenue contracts and arrangements with third party suppliers are denominated in U.S. Dollars. Additionally, a portion of our expenses, primarily the cost to manufacture, cost of personnel to deliver technical support on our products and professional services, sales and sales support and research and development, are denominated in foreign currencies.

Revenue resulting from selling in currencies and costs incurred in local currencies are exposed to foreign currency exchange rate fluctuations which can affect our operating income. As foreign currency exchange rates vary, operating income may differ from expectations. Increases in the value of the U.S. Dollar relative to other currencies would make our products more expensive relative to competing products priced in such other currencies, which could negatively impact our ability to compete. Conversely, decreases in the value of the U.S. Dollar relative to other currencies could result in our foreign suppliers raising their prices in order to continue doing business with us. However, we do not expect foreign currency exchange rate fluctuations to have a material effect on our results of operations.

We use derivative instruments, such as foreign currency exchange contracts, to hedge certain exposures to fluctuations in foreign currency exchange rates. These contracts reduce, but do not entirely eliminate the impact of currency exchange rates movement on our assets and liabilities.

Interest Rate Risk

We are exposed to market risk due to changing interest rates under our credit facilities. Our Credit Facility is comprised of a Term B loan and a revolving credit agreement with interest rates as described under Note 6 of Notes to the Consolidated Financial Statements.

At the end of fiscal 2021, the Term B loan had a balance of $555.1 million. A hypothetical 10% increase in our borrowing rates at the end of fiscal 2021, would result in approximately $2.2 million annual increase in interest expense on this existing principal balance.

Item 8. Financial Statements and Supplementary Data

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REPORT OF INDEPENDENT REGISTERED PUBLIC ACCOUNTING FIRM

To the Stockholders and the Board of Directors of
Ultra Clean Holdings, Inc.

Opinions on the Financial Statements and Internal Control Over Financial Reporting

We have audited the accompanying consolidated balance sheets of Ultra Clean Holdings, Inc. (the "Company") as of December 31, 2021 and December 25, 2020, the related consolidated statements of operations, comprehensive income (loss), stockholders' equity and cash flows for each of the years ended December 31, 2021, December 25, 2020 and December 27, 2019, and the related notes (collectively referred to as the "consolidated financial statements"). We also have audited the Company's internal control over financial reporting as of December 31, 2021, based on criteria established in Internal Control - Integrated Framework (2013) issued by the Committee of Sponsoring Organizations of the Treadway Commission (COSO). As discussed in Management's Report on Internal Control over Financial Reporting, on March 31, 2021, the Company acquired Ham-Let (Israel-Canada) Ltd (Ham-Let). For the purposes of assessing internal control over financial reporting, management excluded Ham-Let, whose financial statements constitute 13.5% and 8.9% of the Company's consolidated total assets (excluding $203.6 million of goodwill and intangible assets, net, which were integrated into the Company's control environment), and revenues, respectively. Accordingly, our audit did not include the internal control over financial reporting of Ham-Let.

In our opinion, the consolidated financial statements referred to above present fairly, in all material respects, the consolidated financial position of the Company as of December 31, 2021 and December 25, 2020, and the consolidated results of its operations and its cash flows for each of the years ended December 31, 2021, December 25, 2020, and December 27, 2019, in conformity with accounting principles generally accepted in the United States of America. Also in our opinion, the Company maintained, in all material respects, effective internal control over financial reporting as of December 31, 2021, based on criteria established in Internal Control - Integrated Framework (2013) issued by COSO.

Basis for Opinions

The Company's management is responsible for these consolidated financial statements, for maintaining effective internal control over financial reporting, and for its assessment of the effectiveness of internal control over financial reporting, included in the accompanying Management Report on Internal Control over Financial Reporting included in Item 9A. Our responsibility is to express an opinion on the Company's consolidated financial statements and an opinion on the Company's internal control over financial reporting based on our audits. We are a public accounting firm registered with the Public Company Accounting Oversight Board (United States) ("PCAOB") and are required to be independent with respect to the Company in accordance with the U.S. federal securities laws and the applicable rules and regulations of the Securities and Exchange Commission and the PCAOB.

We conducted our audits in accordance with the standards of the PCAOB. Those standards require that we plan and perform the audits to obtain reasonable assurance about whether the consolidated financial statements are free of material misstatement, whether due to error or fraud, and whether effective internal control over financial reporting was maintained in all material respects.

Our audits of the consolidated financial statements included performing procedures to assess the risks of material misstatement of the consolidated financial statements, whether due to error or fraud, and performing procedures to respond to those risks. Such procedures included examining, on a test basis, evidence regarding the amounts and disclosures in the consolidated financial statements. Our audits also included evaluating the accounting principles used and significant estimates made by management, as well as evaluating the overall presentation of the consolidated financial statements. Our audit of internal control over financial reporting included obtaining an understanding of internal control over financial reporting, assessing the risk that a material weakness exists, and testing and evaluating the design and operating effectiveness of internal control based on the assessed risk. Our audits also included performing such other procedures as we considered necessary in the circumstances. We believe that our audits provide a reasonable basis for our opinions.

Definition and Limitations of Internal Control Over Financial Reporting

A company's internal control over financial reporting is a process designed to provide reasonable assurance regarding the reliability of financial reporting and the preparation of financial statements for external purposes in accordance with generally accepted accounting principles. A company's internal control over financial reporting includes those policies and procedures that (1) pertain to the maintenance of records that, in reasonable detail, accurately and fairly reflect the transactions and dispositions of the assets of the company; (2) provide reasonable assurance that transactions are recorded as necessary to permit preparation of financial statements in accordance with generally accepted accounting principles, and that receipts and expenditures of the company are being made only in accordance with authorizations of management and directors of the company; and (3) provide reasonable assurance regarding prevention or timely detection of unauthorized acquisition, use, or disposition of the company's assets that could have a material effect on the financial statements.

Because of its inherent limitations, internal control over financial reporting may not prevent or detect misstatements. Also, projections of any evaluation of effectiveness to future periods are subject to the risk that controls may become inadequate because of changes in conditions, or that the degree of compliance with the policies or procedures may deteriorate.

Critical Audit Matters

The critical audit matters communicated below are matters arising from the current period audit of the consolidated financial statements that were communicated or required to be communicated to the audit committee and that (1) relate to accounts or disclosures that are material to the consolidated financial statements and (2) involved our especially challenging, subjective, or complex judgments. The communication of critical audit matters does not alter in any way our opinion on the consolidated financial statements, taken as a whole, and we are not, by communicating the critical audit matters below, providing a separate opinion on the critical audit matters or on the accounts or disclosures to which they relate.

Valuation of Inventories

As described in Notes 1 and 3 to the consolidated financial statements, the Company's consolidated inventories balance was $379.2 million as of December 31, 2021. The Company values its inventories at the lower of cost (first-in, first-out) or net realizable value. Obsolete inventory or inventory in excess of management's estimated usage is written-down to its estimated market value less costs to sell, if less than its cost. Inherent in the estimates of market value are management's estimates related to economic trends and future demand for the Company's products. As disclosed by management, if these factors are less favorable than those projected, additional inventory write-downs may be required.

The valuation of inventories, specific to write downs, requires management to make significant assumptions and especially complex judgments about the future salability of the inventory and its net realizable value. These assumptions include the assessment of net realizable value by inventory category considering retention periods, future usage and market demand for their products. Additionally, management makes qualitative judgments related to slow moving and obsolete inventories. These factors were the principal considerations that led us to determine that the valuation of inventories is a critical audit matter.

Considering the fact that Ham-Let was excluded by management in assessing internal control over financial reporting, and taking into account our risk assessment for each of the various locations and components, the most relevant procedures we performed to address this critical audit matter included:

- Testing the design and operating effectiveness of internal controls over the valuation of inventories, including those related to the Company's methodology for valuing specific inventory categories;
- Evaluating the appropriateness of and testing management's process for determining the valuation of inventories, including:
    - Evaluating the reasonableness of qualitative adjustments and significant assumptions used by management including those related to forecasted demand;

- Testing the completeness, accuracy, and relevance of the underlying data used in management's estimate;
- Testing the calculations related to the application of the Company's methodology to specific inventory categories; and
- Performing inquiries with appropriate financial and non-financial personnel, regarding obsolete or discontinued inventory models, cancelled sales orders and other factors to corroborate management's assertions regarding qualitative judgments about slow moving and obsolete inventories.

- Developing an independent expectation of inventory write-downs at year end based on historical trends and balances and comparing it to management's estimate.

Valuation of Intangible Assets Associated with Business Acquisition

As described in Note 2 to the consolidated financial statements, the Company completed the acquisition of Ham-Let (Israel-Canada) Ltd. As a result of the acquisition, the Company recorded goodwill of $98.9 million, and intangible assets of $118.6 million. The acquisition was accounted for as a business combination.

Auditing the Company's accounting for the acquisition was especially challenging as the determination of the fair value of the intangible assets acquired required management to make subjective estimates and assumptions. The Company used an income approach to measure the acquired intangible assets. The valuation of the intangible assets is subject to higher estimation uncertainty due to management's judgments in determining significant assumptions that included projected revenue growth, estimated expenses and royalty and discount rates. Changes in these significant assumptions could have a significant effect on the fair value of the intangible assets.

The primary procedures we performed to address this critical audit matter included:

- Testing the design and operating effectiveness of internal controls over the Company's process for accounting for its acquisition of Ham-Let (Israel-Canada) Ltd. More specifically, we tested controls over management's review of the valuation of intangible assets, including the review of the valuation model and significant inputs and assumptions used in the valuation.
- Utilizing a valuation specialist to assist in evaluating the appropriateness of the Company's valuation models and evaluating the reasonableness of significant assumptions used such as the revenue growth, estimated expenses, and the royalty and discount rates as compared to industry and market data and historical results.
- Evaluating whether the assumptions used were reasonable by comparing them to the past performance of the acquired entity, industry data and market forecasts, and whether such assumptions were consistent with evidence obtained in other areas of the audit.

/s/ Moss Adams LLP

San Francisco, California
March 1, 2022
We have served as the Company's auditor since 2015.

Ultra Clean Holdings, Inc.

Consolidated Balance Sheets

(In millions, except par value)	December 31, 2021	December 25, 2020
ASSETS		
Current assets:		
Cash and cash equivalents	$ 466.5	$ 200.3
Accounts receivable, net of allowance for doubtful accounts of $0.3 at December 31, 2021 and December 25, 2020	250.1	145.5
Inventories	379.2	180.4
Prepaid expenses and other current assets	41.3	18.9
Total current assets	1,137.1	545.1
Property, plant and equipment, net	242.3	159.2
Goodwill	270.0	171.1
Intangible assets, net	245.7	160.5
Deferred tax assets, net	37.6	23.5
Operating lease right-of-use assets	83.4	37.8
Other non-current assets	9.3	5.3
Total assets	$ 2,025.4	$ 1,102.5
LIABILITIES AND STOCKHOLDERS' EQUITY		
Current liabilities:		
Bank borrowings	$ 22.1	$ 7.4
Accounts payable	332.9	121.3
Accrued compensation and related benefits	46.8	34.5
Operating lease liabilities	17.3	11.7
Other current liabilities	50.0	26.3
Total current liabilities	469.1	201.2
Bank borrowings, net of current portion	529.9	261.6
Deferred tax liabilities	54.9	33.6
Operating lease liabilities	65.9	31.1
Other liabilities	12.9	23.8
Total liabilities	1,132.7	551.3
Commitments and contingencies (See Note 9)		
Equity:		
UCT stockholders' equity:		
Preferred stock — $0.001 par value, 10.0 authorized; none outstanding	—	—
Common stock — $0.001 par value, 90.0 authorized; 44.9 and 40.6 shares issued and outstanding at December 31, 2021 and December 25, 2020, respectively	0.1	0.1
Additional paid-in capital	514.9	312.8
Common shares held in treasury, at cost, 0.6 shares at December 31, 2021 and December 25, 2020	(3.3)	(3.3)
Retained earnings	337.4	217.9
Accumulated other comprehensive income (loss)	(0.2)	5.1
Total UCT stockholders' equity	848.9	532.6
Noncontrolling interests	43.8	18.6
Total equity	892.7	551.2
Total liabilities and equity	$ 2,025.4	$ 1,102.5

(See accompanying Notes to Consolidated Financial Statements)

Ultra Clean Holdings, Inc.

Consolidated Statements of Operations

(In millions, except per share amounts)	Fiscal Year Ended December 31, 2021	December 25, 2020	December 27, 2019
Revenues:			
Product	$ 1,803.9	$ 1,131.2	$ 840.8
Services	297.7	267.4	225.4
Total revenues	2,101.6	1,398.6	1,066.2
Cost of revenues:			
Product	1,478.7	934.7	719.0
Services	192.9	172.1	150.4
Total cost revenues	1,671.6	1,106.8	869.4
Gross margin	430.0	291.8	196.8
Operating expenses:			
Research and development	24.5	14.8	14.6
Sales and marketing	48.2	25.1	22.4
General and administrative	171.6	130.5	129.9
Total operating expenses	244.3	170.4	166.9
Income from operations	185.7	121.4	29.9
Interest income	0.4	0.9	0.4
Interest expense	(24.2)	(16.9)	(25.6)
Other income (expense), net	(7.6)	(5.7)	(2.4)
Income before provision for income taxes	154.3	99.7	2.3
Provision for income taxes	27.9	19.3	10.0
Net income (loss)	126.4	80.4	(7.7)
Less: Net income attributable to noncontrolling interests	6.9	2.8	1.7
Net income (loss) attributable to UCT	$ 119.5	$ 77.6	$ (9.4)
Net income (loss) per share attributable to UCT common stockholders:			
Basic	$ 2.75	$ 1.93	$ (0.24)
Diluted	$ 2.69	$ 1.89	$ (0.24)
Shares used in computing net income (loss) per share:			
Basic	43.5	40.2	39.5
Diluted	44.4	41.1	39.5

(See accompanying Notes to Consolidated Financial Statements)

Ultra Clean Holdings, Inc.

Consolidated Statements of Comprehensive Income (Loss)

(In millions)	Fiscal Year Ended December 31, 2021	December 25, 2020	December 27, 2019
Net income (loss)	$ 126.4	$ 80.4	$ (7.7)
Other comprehensive income (loss):			
Change in cumulative translation adjustment	(5.0)	6.5	(0.4)
Change in pension net actuarial gain / (loss)	0.4	(0.1)	(0.3)
Cash flow hedges:			
Change in fair value of derivatives	(0.7)	—	—
Total other comprehensive income (loss), net of tax	(5.3)	6.4	(0.7)
Other comprehensive income, net of tax, attributable to noncontrolling interests	6.9	2.8	1.7
Comprehensive income (loss) attributable to UCT	$ 114.2	$ 84.0	$ (10.1)

(See accompanying Notes to Consolidated Financial Statements)

Ultra Clean Holdings, Inc.
Consolidated Statements of Cash Flows

(In millions)	Fiscal Year Ended December 31, 2021	December 25, 2020	December 27, 2019
Cash flows from operating activities:			
Net income (loss)	$ 126.4	$ 80.4	$ (7.7)
Adjustments to reconcile net income (loss) to net cash provided by operating activities (excluding assets acquired, liabilities assumed and noncontrolling interests at acquisition):			
Depreciation and amortization	34.1	25.0	21.5
Amortization of intangible assets	33.4	19.8	20.1
Stock-based compensation	15.8	12.7	12.1
Amortization of debt issuance costs	3.4	1.9	1.8
Loss (gain) on the disposal of assets and business	0.2	(1.4)	2.0
Gain from insurance proceeds	(7.3)	(1.0)	—
Deferred income taxes	(3.2)	0.4	(3.6)
Change in the fair value of financial instruments	12.4	7.7	2.8
Changes in assets and liabilities, net of effects of acquisitions:			
Accounts receivable	(53.0)	(32.7)	(4.5)
Inventories	(125.1)	(8.0)	22.3
Prepaid expenses and other current assets	(4.2)	1.2	3.7
Other non-current assets	(0.8)	(0.1)	—
Accounts payable	170.6	(12.6)	31.0
Accrued compensation and related benefits	1.8	9.7	9.0
Income taxes payable	7.7	2.8	(2.9)
Operating lease assets and liabilities	(1.1)	(1.1)	7.1
Other liabilities	0.5	(7.4)	6.3
Net cash provided by operating activities	211.6	97.3	121.0
Cash flows from investing activities:			
Purchases of property, plant and equipment	(59.3)	(36.4)	(26.3)
Proceeds from sale of equipment, including insurance proceeds	7.7	6.6	7.0
Settlement of forward contracts in conjunction with acquisition	(10.4)	—	—
Acquisition of businesses, net of cash acquired	(342.8)	—	(29.9)
Net cash used in investing activities	(404.8)	(29.8)	(49.2)
Cash flows from financing activities:			
Proceeds from bank borrowings	415.2	76.7	41.8
Proceeds from issuance of common stock	193.6	0.6	0.3
Principal payments on bank borrowings and finance leases	(131.8)	(105.5)	(93.0)
Payment of contingent earn-out	—	(1.4)	—
Payments of debt issuance costs	(8.9)	—	—
Payments of dividends to a joint venture shareholder	—	—	(0.6)
Employees' taxes paid upon vesting of restricted stock units	(7.3)	(1.5)	(1.9)
Net cash provided by (used in) financing activities	460.8	(31.1)	(53.4)
Effect of exchange rate changes on cash and cash equivalents	(1.4)	1.4	—
Net increase in cash and cash equivalents	266.2	37.8	18.4
Cash and cash equivalents at beginning of period	200.3	162.5	144.1
Cash and cash equivalents at end of period	466.5	$ 200.3	$ 162.5
Supplemental cash flow information:			
Income taxes paid, net of income tax refunds	$ 23.1	$ 16.4	$ 14.5
Interest paid	$ 19.9	$ 15.6	$ 23.6
Non-cash investing and financing activities:			
Property, plant and equipment purchased included in accounts payable and other liabilities	$ 14.8	$ 3.2	$ 5.0
Reclassification of stock purchase commitment to noncontrolling interest	$ 16.5	$ —	$ —
Fair value of earn-out payment related to business acquisitions	$ —	$ —	$ 1.4

(See accompanying Notes to Consolidated Financial Statements)

Ultra Clean Holdings, Inc.

Consolidated Statements of Stockholders' Equity

(In millions)	Common Stock Shares	Common Stock Amount	Additional Paid-in Capital	Treasury shares Shares	Treasury shares Amount	Retained Earnings	Accumulated Other Comprehensive Income (Loss)	Total Stockholders' Equity of UCT	Noncontrolling Interests	Total Equity
Balance December 28, 2018	39.1	$ 0.1	$ 290.4	0.6	$ (3.3)	$ 149.7	$ (0.6)	$ 436.3	$ 14.7	$ 451.0
Issuance under employee stock plans	0.9	-	0.3	-	-	-	-	0.3	-	0.3
Stock-based compensation expense	-	-	12.1	-	-	-	-	12.1	-	12.1
Employees' taxes paid upon vesting of restricted stock units	(0.1)	-	(1.9)	-	-	-	-	(1.9)	-	(1.9)
Net income (loss)	-	-	-	-	-	(9.4)	-	(9.4)	1.7	(7.7)
Dividend payments to a joint venture shareholder	-	-	-	-	-	-	-	-	(0.6)	(0.6)
Other comprehensive loss	-	-	-	-	-	-	(0.7)	(0.7)	-	(0.7)
Balance December 27, 2019	39.9	$ 0.1	$ 300.9	0.6	$ (3.3)	$ 140.3	$ (1.3)	$ 436.7	$ 15.8	$ 452.5
Issuance under employee stock plans	0.8	-	0.6	-	-	-	-	0.6	-	0.6
Stock-based compensation expense	-	-	12.8	-	-	-	-	12.8	-	12.8
Employees' taxes paid upon vesting of restricted stock units	(0.1)	-	(1.5)	-	-	-	-	(1.5)	-	(1.5)
Net income	-	-	-	-	-	77.6	-	77.6	2.8	80.4
Other comprehensive income	-	-	-	-	-	-	6.4	6.4	-	6.4
Balance December 25, 2020	40.6	$ 0.1	$ 312.8	0.6	$ (3.3)	$ 217.9	$ 5.1	$ 532.6	$ 18.6	$ 551.2
Issuance under employee stock plans	0.7	—	0.8	-	-	-	-	0.8	-	0.8
Issuance of common stock	3.7	-	192.8	-	-	-	-	192.8	-	192.8
Stock-based compensation expense	-	-	15.8	-	-	-	-	15.8	-	15.8
Employees' taxes paid upon vesting of restricted stock units	(0.1)	-	(7.3)	-	-	-	-	(7.3)	-	(7.3)
Dividend income	-	-	-	-	-	-	-	-	(0.1)	(0.1)
Acquisition of Ham-Let	-	-	-	-	-	-	-	-	1.9	1.9
Reclassification related to Cinos Korea	-	-	-	-	-	-	-	-	16.5	16.5
Net income	-	-	-	-	-	119.5	-	119.5	6.9	126.4
Other comprehensive income	-	-	-	-	-	-	(5.3)	(5.3)	-	(5.3)
Balance December 31, 2021	44.9	$ 0.1	$ 514.9	0.6	$ (3.3)	$ 337.4	$ (0.2)	$ 848.9	$ 43.8	$ 892.7

(See accompanying Notes to Consolidated Financial Statements)

1. ORGANIZATION AND SIGNIFICANT ACCOUNTING POLICIES

Organization

Ultra Clean Holdings, Inc., (the "Company" or "UCT") a Delaware corporation, was founded in November 2002 and became a publicly traded company on the NASDAQ Global Market in March 2004. The Company is a global leader in the design, engineering and manufacture of production tools, modules and subsystems for the semiconductor and display capital equipment markets. The Company's products include chemical delivery modules, frame assemblies, gas delivery systems, fluid delivery systems, precision robotics, process modules as well as other high-level assemblies. The Company's services provide part cleaning, surface encapsulation, and high sensitivity micro contamination analysis primarily for the semiconductor device makers and wafer fabrication equipment markets.

Fiscal Year

The Company uses a 52-53-week fiscal year ending on the Friday nearest December 31. All references to quarters refer to fiscal quarters and all references to years refer to fiscal years.

Principles of Consolidation

The Company's Consolidated Financial Statements include the accounts of the Company and its wholly-owned subsidiaries and all intercompany accounts and transactions have been eliminated in consolidation.

Noncontrolling interests

Noncontrolling interests are recognized to reflect the portion of the equity of the majority-owned subsidiaries which is not attributable, directly or indirectly, to the controlling stockholder. The Company's consolidated entities include partially-owned entities, which are (1) Cinos Co., Ltd ("Cinos Korea"), a South Korean company that provides outsourced cleaning and recycling of precision parts for the semiconductor industry through its operating facilities in South Korea and whose results the Company consolidates, (2) Cinos Xian Clean Technology, Ltd. ("Cinos China"), a Chinese entity that is majority owned by Cinos Korea and (3) Rovac Pte, Ltd ("Rovac"), a Singaporean Company that is majority owned by Ham-Let. The interest held by others in Cinos Korea, in Cinos China and in Rovac are presented as noncontrolling interests in the accompanying Consolidated Financial Statements. The noncontrolling interests will continue to be attributed their share of gains and losses even if that attribution results in a deficit noncontrolling interests' balance.

Segments

The Financial Accounting Standards Board's ("FASB") guidance regarding disclosure about segments in an enterprise and related information establishes standards for the reporting by public business enterprises of information about reportable segments, products and services, geographic areas, and major customers. The method for determining what information to report is based on the manner in which management organizes the reportable segments within the Company for making operational decisions and assessments of financial performance. The Company's chief operating decision-maker is the Chief Executive Officer. The Company has three operating segments and two reportable segments: Products and Services. See Note 15 to the Company's Consolidated Financial Statements.

Foreign Currency Translation and Remeasurement

As of December 31, 2021, the functional currency of the Products business unit's foreign subsidiaries, excluding the subsidiaries of Ham-Let, is the U.S. Dollar. The functional currency of the Ham-Let subsidiaries in Singapore, United Kingdom, Norway, Taiwan, South Korea and China, is their local currency, except for Israel, which is the

U.S. Dollar. The functional currency of the Service business unit's foreign subsidiaries is the local currency, except for that of its Singapore and Scotland entities, which is the U.S. Dollar.

Due to the changes in economic factors in fluid delivery systems ("FDS") and in Services' entity in Scotland in fiscal 2020, the Company determined that the functional currency designation of FDS and Services' entity in Scotland is the U.S. Dollar, a change from the functional foreign currency utilized in the prior year. The impact of these changes was not significant.

For the Company's foreign subsidiaries where the local currency is the functional currency, the Company translates the financial statements of these subsidiaries to U.S. Dollars using month-end exchange rates for assets and liabilities, and average exchange rates for revenue, costs and expenses. Translation gains and losses are recorded in accumulated other comprehensive income ("AOCI") within UCT stockholders' equity. For the Company's foreign subsidiaries where the U.S. Dollar is the functional currency, any gains and losses resulting from the translation of the assets and liabilities of these subsidiaries are recorded in other income (expense), net.

Use of Estimates

The presentation of financial statements in conformity with U.S. generally accepted accounting principles ("GAAP") requires management to make estimates and assumptions that affect the reported amounts of assets and liabilities, and disclosures of contingent liabilities at the date of the financial statements and the reported amounts of revenues and expenses during the reporting period. Such estimates and assumptions include inventory valuation, accounting for income taxes, business combinations, valuation of goodwill, intangible assets and long-lived assets. The Company bases its estimates and judgments on historical experience and on various other assumptions that it believes are reasonable under the circumstances. However, future events are subject to change and the best estimates and judgments routinely require adjustments. Actual amounts may differ from those estimates.

Cash and Cash Equivalents

The Company considers currency on hand, demand deposits, time deposits, and all highly liquid investments with an original maturity of three months or less at the date of purchase to be cash and cash equivalents. Cash and cash equivalents are held in various financial institutions in the United States and internationally.

Concentration of Credit Risk

Financial instruments which subject the Company to concentrations of credit risk consist principally of cash and cash equivalents and accounts receivable. The Company sells its products and provides services primarily to semiconductor capital equipment manufacturers in the United States. The Company performs credit evaluations of its customers' financial condition and generally requires no collateral.

The Company's most significant customers (having individually accounted for 10% or more of accounts receivable) and their related revenues as a percentage of total revenues were as follows:

	Fiscal Year Ended		
	2021	2020	2019
Lam Research Corporation	40.2 %	42.9 %	41.7 %
Applied Materials, Inc.	23.8	24.2	25.2
Total	64.0 %	67.1 %	66.9 %

Two customers' accounts receivable balances, Lam Research Corporation and Applied Materials, Inc. were individually greater than 10.0% of accounts receivable as of December 31, 2021, in the aggregate they represented 39.0%.

Fair Value of Measurements

The Company measures its cash equivalents, derivative contracts, contingent earn-out liabilities, pension obligation and common stock purchase obligation (prior to the reclass discussed in Note 10) at fair value on a recurring basis. Fair value is an exit price, representing the amount that would be received to sell an asset or paid to transfer a liability in an orderly transaction between market participants. As such, fair value is a market-based measurement that is determined based on assumptions that market participants would use in pricing an asset or a liability. Assets and liabilities recorded at fair value are measured and classified in accordance with a three-tier fair value hierarchy based on the observability of the inputs available in the market used to measure fair value:

Level 1 — Observable inputs that reflect quoted prices (unadjusted) for identical assets or liabilities in active markets.

Level 2 — Inputs that are based upon quoted prices for similar instruments in active markets, quoted prices for identical or similar instruments in markets that are not active, and model-based valuation techniques for which all significant inputs are observable in the market or can be derived from observable market data. Where applicable, these models project future cash flows and discount the future amounts to a present value using market-based observable inputs including interest rate curves, foreign exchange rates, and credit ratings.

Level 3 — Unobservable inputs that are supported by little or no market activities.

Derivative Financial Instruments

The Company uses forward contracts to hedge a portion of, but not all, existing and anticipated foreign currency denominated transactions typically expected to occur within 24 months. The purpose of the hedge is to mitigate the effect of exchange rate fluctuations on certain foreign currency denominated costs and eventual cash flows. The Company recognizes derivative instruments as either assets or liabilities in the accompanying Consolidated Balance Sheets at fair value. The Company records changes in the fair value of the derivatives in the accompanying Consolidated Statements of Operations as other income (expense), net, or as a component of AOCI in the accompanying Consolidated Balance Sheets.

Inventories

Inventories are stated at the lower of cost (which approximates actual cost on a first-in, first-out basis) or net realizable value. The Company evaluates the valuation of all inventories, including raw materials, work-in-process, finished goods and spare parts on a periodic basis. Obsolete inventory or inventory in excess of management's estimated usage is written down to its estimated market value less costs to sell, if less than its cost. Inherent in the estimates of market value are management's estimates related to economic trends and future demand for the Company's products.

Inventory write downs inherently involve judgments as to assumptions about expected future demand and the impact of market conditions on those assumptions. Although the Company believes that the assumptions it used in estimating inventory write downs are reasonable, significant changes in any one of the assumptions in the future could produce a significantly different result. There can be no assurances that future events and changing market conditions will not result in significant increases in inventory write downs. For further discussion of the Company's inventory see Note 3 of Notes to the Consolidated Financial Statements. .

Property, Plant and Equipment

Property, plant and equipment are stated at cost, or, in the case of equipment under finance leases, the present value of future minimum lease payments at inception of the related lease. The Company also capitalizes interest on borrowings related to eligible capital expenditures. Capitalized interest is added to the cost of the qualified assets and is subject to depreciation. Depreciation and amortization are computed using the straight-line method over the lesser of the estimated useful lives of the assets or the terms of the leases. Useful lives range from three to fifty years. Direct costs incurred to develop software for internal use are capitalized and amortized over an estimated useful life of three or ten years. Costs related to the design or maintenance of internal use software are expensed as incurred. Capitalized internal use software is included in computer equipment and software. For further discussion of the Company's property, plant and equipment see Note 3 of Notes to the Consolidated Financial Statements. .

Long-lived Assets

The Company evaluates long-lived assets for impairment whenever events or changes in circumstances indicate the carrying value of an asset group may not be recoverable. The Company assesses the fair value of the assets based on the amount of the undiscounted future cash flows that the assets are expected to generate and recognizes an impairment loss when estimated undiscounted future cash flows expected to result from the use of the asset are less than the carrying value of the asset. If the Company identifies an impairment, the Company reduces the carrying value of the group of assets to comparable market values, when available and appropriate, or to its estimated fair value based on a discounted cash flow approach.

At the end of fiscal years 2021, 2020 and 2019, the Company assessed the useful lives of its long-lived assets, including property, plant and equipment as well as its intangible assets and concluded that no impairment was required.

Leases

The Company determines if an arrangement is a lease, or contains a lease, at the inception of the arrangement and reassess that conclusion if the arrangement is modified. When the Company determines the arrangement is a lease, or contains a lease, at lease inception, it then determines whether the lease is an operating lease or a finance lease. Operating and finance leases with lease terms of one year or greater result in the Company recording a right-of-use ("ROU") asset and lease liability on its balance sheet. ROU assets represent the Company's right to use an underlying asset for the lease term and lease liabilities represent its obligation to make lease payments arising from the lease. Operating and finance lease ROU assets and liabilities are initially recognized based on the present value of lease payments over the lease term. In determining the present value of lease payments, the Company uses the implicit interest rate if readily determinable or when the implicit interest rate is not readily determinable, the Company uses its incremental borrowing rate.

The incremental borrowing rate is not a commonly quoted rate and is derived through a combination of inputs including the Company's credit rating and the impact of full collateralization. The incremental borrowing rate is based on the Company's collateralized borrowing capabilities over a similar term of the lease payments. The Company utilizes the incremental borrowing rate based on bank loan rates at the respective locations for leases where appropriate and the consolidated group bank loan rate where the Company does not have local bank financings.

The operating lease ROU asset also includes any lease payments made prior to the adoption of ASC 842 and excludes any lease incentives. Specific lease terms used in computing the ROU assets and lease liabilities may include options to extend or terminate the lease when the Company believes it is reasonably certain that it will exercise that option. Lease expense for operating lease payments is recognized on a straight-line basis over the lease term. As allowed by the guidance, the Company has elected not to recognize ROU assets and lease liabilities that arise from short-term (12 months or less) leases for any class of underlying asset. Operating leases are included in operating lease ROU assets, other current liabilities, and long-term operating lease liabilities on the Company's consolidated balance sheet. The Company's finance leases at December 31, 2021 were not significant. For further discussion of the Company's leases see Note 13 of Notes to the Consolidated Financial Statements..

Goodwill and Indefinite Lived Intangible Assets

Goodwill and indefinite-lived intangible assets are not amortized but are reviewed for impairment annually. Intangible assets are presented at cost, net of accumulated amortization, and are amortized on either a straight-line method or on an accelerated method over their estimated future discounted cash flows. The Company reviews goodwill and purchased intangible assets with indefinite lives for impairment annually and whenever events or changes in circumstances indicate the carrying value of an asset may not be recoverable, such as when reductions in demand or significant economic slowdowns in the semiconductor industry are present. There were no impairments of the Company's goodwill and purchased intangible assets in fiscal year 2021. For further discussion of the Company's goodwill and intangible assets see Note 5 of Notes to the Consolidated Financial Statements.

Deferred Debt Issuance Costs

Debt issuance costs incurred in connection with obtaining debt financing are deferred and presented as a direct deduction from Bank Borrowings in the accompanying Consolidated Balance Sheets. Deferred costs are amortized on an effective interest method basis over the contractual term.

Defined Benefit Pension Plan

The Company has a noncontributory defined benefit pension plan covering substantially all of the employees of three of its foreign entities upon termination of their employee services. For further discussion of the Company's defined benefit pension plan see Note 8 of Notes to the Consolidated Financial Statements.

Revenue Recognition

Revenue is recognized when control of the promised goods or services is transferred to the Company's customers, in an amount that reflects the consideration the Company expects to be entitled to in exchange for those goods or services. The Company performs the following five steps to determine when to recognize revenue: (1) identification of the contract(s) with customers, (2) identification of the performance obligations in the contract, (3) determination of the transaction price, (4) allocation of the transaction price to the performance obligations in the contract, and (5) recognition of revenue when, or as, a performance obligation is satisfied. For further discussion of the Company's revenue recognition see Note 12 of Notes to the Consolidated Financial Statements.

Shipping and Handling Costs

Shipping and handling costs are included as a component of cost of revenues.

Research and Development Costs

Research and development costs are expensed as incurred.

Stock-Based Compensation Expense

The Company maintains stock-based compensation plans which allow for the issuance of equity-based awards to executives and certain employees. These equity-based awards include restricted stock awards ("RSAs") and restricted stock units ("RSUs"). These awards are granted to employees with a unit purchase price of zero dollars and typically vest over three years, subject to the employee's continued service with the Company. The RSAs and RSUs use grant date stock price as a proxy for fair value and compensation expense. For awards that contain market conditions, compensation expense is measured using a Monte Carlo simulation model and recognized over the derived service period based on the expected market performance as of the grant date. The Company also maintains an employee stock purchase plan ("ESPP") that provides for the issuance of shares to all eligible employees of the Company at a discounted price. For further discussion of the Company's employees stock plans see Note 11 of Notes to the Consolidated Financial Statements.

Government Subsidies

Government subsidies are recognized where there is reasonable assurance that the subsidy will be received and all attached conditions will be complied with. When the subsidy relates to an expense item, it is recognized as income on a systematic basis over the periods that the related costs, for which it is intended to compensate, are expensed. When the subsidy relates to an asset, it is recognized as income in equal amounts over the expected useful life of the related asset. When the subsidy does not relate to specific expenses or assets, the income is accounted for in the period where there is reasonable assurance that the subsidy will be received. For further discussion of the Company's government subsidies see Note 16 of Notes to the Consolidated Financial Statements.

Income Taxes

The Company utilizes the asset and liability method of accounting for income taxes, under which deferred taxes are determined based on the temporary differences between the financial statement and tax basis of assets and liabilities

using tax rates expected to be in effect during the years in which the basis differences reverse. Deferred income taxes arise from temporary differences between the tax basis of assets and liabilities and their reported amounts in the financial statements, which will result in taxable or deductible amounts in the future. In evaluating our ability to realize our deferred tax assets within the jurisdiction from which they arise, we consider all available positive and negative evidence, including scheduled reversals of deferred tax liabilities, projected future taxable income, tax-planning strategies, and results of recent operations. In projecting future taxable income, we begin with historical results and incorporate assumptions about the amount of future federal, state, and foreign pretax operating income adjusted for items that do not have tax consequences. The assumptions about future taxable income require significant judgment and are consistent with the plans and estimates we are using to manage the underlying businesses. In evaluating the objective evidence that historical results provide, we consider recent cumulative income (loss). A valuation allowance is recorded when it is more likely than not that some of the deferred tax assets will not be realized.

Income tax positions must meet a more likely than not recognition threshold to be recognized. The Company recognizes tax benefits from uncertain tax positions only if it is more likely than not that the tax position will be sustained on examination by the taxing authorities, based on the technical merits of the position. The tax benefits recognized in the financial statements from such positions are then measured based on the largest benefit that has a greater than 50% likelihood of being realized upon ultimate settlement. The Company recognizes potential accrued interest and penalties related to unrecognized tax benefits within the consolidated statements of income as income tax expense.

The Company accounts for Global Intangible Low-Taxed Income as period costs when incurred. For further discussion of the Company's income taxes see Note 7 of Notes to the Consolidated Financial Statements

Net Income per Share

Basic net income per share is computed by dividing net income by the weighted average number of shares outstanding for the period. Diluted net income per share is calculated by dividing net income by the weighted average number of common shares outstanding and common equivalent shares from dilutive stock options and restricted stock using the treasury stock method, except when such shares are anti-dilutive. For further information of the Company's income per share see Note 14 of Notes to Consolidated Financial Statements.

Business Combinations

The Company recognizes assets acquired (including goodwill and identifiable intangible assets), liabilities assumed and noncontrolling interest at fair value on the acquisition date. Subsequent changes to the fair value of such assets acquired and liabilities assumed are recognized in earnings, after the expiration of the measurement period, a period not to exceed 12 months from the acquisition date. Acquisition-related expenses and acquisition-related restructuring costs are recognized in earnings in the period in which they are incurred. For further discussion of the Company's business combinations see Note 2 of Notes to the Consolidated Financial Statements

Accounting Standards Recently Adopted

In December 2019, the FASB issued Accounting Standards Update No. 2019-12, "Income Taxes (Topic 740) Simplifying the Accounting for Income Taxes", as part of its initiative to reduce complexity in the accounting standards. The ASU eliminates certain exceptions from ASC 740 related to the approach for intra-period tax allocation, the methodology for calculating income taxes in an interim period and the recognition of deferred tax liabilities for outside basis differences. ASU 2019-12 also clarifies and simplifies other aspects of the accounting for income taxes. The guidance is effective for fiscal years beginning after December 15, 2020 and for interim periods within those fiscal years. The Company adopted ASU 2019-12 on December 26, 2020. The adoption of this standard did not have a material impact on the Company's Consolidated Financial Statements.

Accounting Standards Not Yet Adopted

In March 2020, the FASB issued ASU 2020-04, *Reference Rate Reform (Topic 848): Facilitation of the Effects of Reference Rate Reform on Financing Reporting.* This guidance provides temporary optional expedients and exceptions through December 31, 2022, to the U.S. GAAP guidance on contract modifications to ease the financial

reporting burdens of the expected market transition from the London Interbank Offered Rate ("LIBOR") and other interbank offered rates to alternative reference rates. The Company expects to adopt this guidance and apply it to reference rate reform effected arrangement modifications. The Company does not expect this new standard to have a material effect on its Consolidated Financial Statements.

Although there are several other new accounting pronouncements issued by the FASB, the Company does not believe any of these accounting pronouncements had or will have a material impact on its Consolidated Financial Statements.

2. BUSINESS COMBINATIONS

Ham-Let (Israel-Canada) Ltd.

On March 31, 2021, the Company acquired all of the outstanding common shares of Ham-Let (Israel-Canada) Ltd., ("Ham-Let") for total purchase consideration of $362.9 million paid in cash. In addition, the Company incurred approximately $11.0 million of costs related to the acquisition ($1.0 million incurred in fiscal year 2020 and $10.0 million in fiscal 2021). Ham-Let engages in the development, manufacturing and marketing of process valves, fittings and hoses for the control and monitoring of industrial systems in a variety of markets, including the Semiconductor market. These products are primarily used in ultra clean gas delivery systems for the transmission of liquids and gases. The Company's primary reason for this acquisition was to broaden UCT's relevance to the semiconductor equipment market and provide access to a new set of customers in the semiconductor fab infrastructure market. The Company borrowed an additional $355.0 million from its existing Credit Facility to finance the acquisition. See further discussion in Note 6 to the Notes to Consolidated Financial Statements.

In December 2020, the Company announced the acquisition of Ham-Let. The expected cash consideration for the equity valuation at that time was approximately 934.7 million Israeli New Shekel ("ILS") or $287.1 million in equity value. US GAAP requires the recording of the purchase price of the acquired entity at the spot rate on acquisition date, rather than the cash amount hedged and paid. A loss of $10.4 million on the forward hedge contract that was adjusted for measurement period adjustments, was recorded in the accompanying Consolidated Statements of Operations as other income (expense), net for the year ended December 31, 2021.

The Company has assigned the purchase price of Ham-Let to the tangible assets, liabilities, identifiable intangible assets acquired and noncontrolling interest, based on their estimated fair values. The excess of purchase price over the aggregate fair value was recorded as goodwill. Goodwill associated with the acquisition is primarily attributable to the future technology, market presence and knowledgeable and experienced workforce. The fair value assigned to identifiable intangible assets acquired was determined using the income approach taking into account the Company's consideration of a number of inputs, including an third-party analysis that was based upon estimates and assumptions provided by the Company. These estimates and assumptions were determined through established and generally accepted valuation techniques and with the assistance of a valuation specialist.

The assigned purchase price is preliminary pending the completion of various analyses and the finalization of estimates. The primary areas of the purchase price that are not yet finalized relate to the fair values of certain tangible assets and liabilities primarily, income and other taxes, intangible assets and residual goodwill. During the measurement period, which can be no more than one year from the date of acquisition, we expect to continue to obtain information to assist us in determining the final fair value of the net assets acquired at the acquisition date during the measurement period. Assets acquired, liabilities assumed and noncontrolling interest are recorded based on valuations derived from estimated fair value assessments and assumptions used by the Company. Thus, the provisional measurements of fair value discussed above are subject to change. The Company expects to finalize the valuation as soon as practicable, but not later than one year from the acquisition date. While the Company believes that its estimates and assumptions underlying the valuations are reasonable, different estimates and assumptions could result in different valuations assigned to the individual assets acquired, liabilities assumed and noncontrolling interest, and the resulting amount of goodwill.

The following table summarizes the preliminary fair values of assets acquired, liabilities assumed and noncontrolling interest as of December 31, 2021 (in millions):

Fair Market Values (In millions)	
Cash and cash equivalents	$ 20.1
Accounts receivable	51.6
Inventories	73.7
Prepaid expenses and other	17.3
Property, plant and equipment	52.1
Goodwill	98.9
Purchased intangible assets	118.6
Deferred tax assets	0.8
Operating lease right-of-use assets	27.7
Other non-current assets	2.2
Total assets acquired	463.0
Bank borrowings	(5.0)
Accounts payable	(30.8)
Accrued compensation and related benefits	(10.5)
Other current liabilities	(13.0)
Deferred tax liabilities	(11.2)
Operating lease liabilities	(23.8)
Other liabilities	(4.0)
Total liabilities assumed	(98.3)
Noncontrolling interests	(1.8)
Total consideration transferred	$ 362.9

	Useful Life (In years)	Purchased Intangible Assets (In millions)
Customer relationships	10	$ 69.0
IP Knowhow	10 - 15	35.5
Trade names	5	9.8
Backlog	1	4.3
Total purchased intangible assets		$ 118.6

The results of operations for the Company for the year ended December 31, 2021 include operating activities for Ham-Let since its acquisition date of March 31, 2021. For the year ended December 31, 2021, net revenue of approximately $187.5 million, attributable to Ham-Let was included in the consolidated results of operations. For the year ended December 31, 2021, results of operations included charges of $13.9 million attributable to amortization of purchased intangible assets. In addition, acquisition-related costs of $10.0 million were included in the results of operations for the year ended December 31, 2021. Acquisition costs are included in general and administrative expenses in the Company's consolidated results of operations.

Unaudited Pro Forma Consolidated Results

The following unaudited pro forma consolidated results of operations assume the acquisition was completed as of the beginning of the year of the reporting periods presented

The unaudited pro forma consolidated results of operations for the years ended December 31, 2021 and December 25, 2020 (in millions, except per share amounts) are summarized as follows:

	December 31, 2021	December 25, 2020
Revenues	$ 2,157.9	$ 1,591.2
Net income	$ 132.0	$ 45.6
Basic earnings per share	$ 3.04	$ 1.13
Diluted earnings per share	$ 2.98	$ 1.11

The unaudited pro forma results above include adjustments related to the purchase price allocation and financing of the acquisition, primarily to increase amortization for the identifiable intangible assets, to increase interest expense for the additional debt incurred to complete the acquisition, to record the $11.6 million cumulative loss related to the forward contracts entered into, in conjunction with the acquisition and to reflect the related income tax effect. The unaudited pro forma results for the year ended December 25, 2020 include acquisition related costs of $14.5 million.

The unaudited pro forma combined financial information has been prepared by management for illustrative purposes only and are not necessarily indicative of the consolidated financial position or results of income in future periods or the results that would have been realized had UCT and Ham-Let been a combined company during the specified periods. The unaudited pro forma combined financial information does not reflect any operating efficiencies and/or cost savings that the Company may achieve with respect to the combined companies, or any liabilities that may result from integration activities.

3. BALANCE SHEET INFORMATION

Inventories consisted of the following:

(In millions)	December 31, 2021	December 25, 2020
Raw materials	$ 220.9	$ 102.9
Work in process	102.5	64.5
Finished goods	55.8	13.0
Total	$ 379.2	$ 180.4

At December 31, 2021 and December 25, 2020, inventory balances were $379.2 million and $180.4 million, respectively. The inventory write-downs are recorded on the basis of obsolete inventory or specific identified inventory in excess of estimated usage. For fiscal years 2021, 2020 and 2019, we wrote down inventories of $6.1 million, $3.4 million and $2.5 million, respectively.

Property, plant and equipment, net, consisted of the following:

(In millions)	Useful Life (in years)	December 31, 2021	December 25, 2020
Land	n/a	$ 4.7	$ 3.8
Buildings	50	52.1	37.2
Leasehold improvements	*	67.3	46.7
Machinery and equipment	5-10	132.6	73.8
Computer equipment and software	3-10	57.7	42.5
Furniture and fixtures	5	5.2	4.4
		319.6	208.4
Accumulated depreciation		(116.0)	(84.0)
Construction in progress		38.7	34.8
Total		$ 242.3	$ 159.2

* Lesser of estimated useful life or remaining lease term

Restructuring

During the first quarter of fiscal year 2020, the Company made a strategic decision to fully integrate Quantum Global Technologies, LLC's ("QGT") corporate office responsibilities from Quakertown, PA to UCT's corporate office in Hayward, CA. As a result, the Company recorded a restructuring charge of $1.9 million for the fiscal year ended December 25, 2020, in general and administrative expense, primarily related to employee severance as well as the impaired value of the facility lease and losses on sale of equipment.

During the fourth quarter of fiscal year 2019, the Company made a strategic decision to close its machining operations in South San Francisco, CA. As a result, the Company recorded a restructuring charge of $12.6 million for fiscal year ended December 27, 2019, in general and administrative expense, related to the sale of equipment, facility leases, severance and write down of inventory.

4. FAIR VALUE

The fair value hierarchy requires an entity to maximize the use of observable inputs and minimize the use of unobservable inputs when measuring fair value. The following table summarizes, for assets or liabilities measured at fair value, the respective fair value and the classification by level of input within the fair value hierarchy:

		Fair Value Measurement at Reporting Date Using		
Description	December 31, 2021	Quoted Prices in Active Markets for Identical Assets (Level 1)	Significant Other Observable Inputs (Level 2)	Significant Unobservable Inputs (Level 3)
(In millions)				
Other liabilities:				
Forward contracts	$ 0.8	$ —	$ 0.8	$ —
Pension obligation	$ 4.0	$ —	$ —	$ 4.0

		Fair Value Measurement at Reporting Date Using		
Description	December 25, 2020	Quoted Prices in Active Markets for Identical Assets (Level 1)	Significant Other Observable Inputs (Level 2)	Significant Unobservable Inputs (Level 3)
(In millions)				
Other assets:				
Forward contracts	$ 1.1	$ —	$ 1.1	$ —
Other liabilities:				
Common stock purchase obligation	$ 12.6	$ —	$ —	$ 12.6
Pension obligation	$ 4.7	$ —	$ —	$ 4.7

The estimated fair value of foreign currency forward contracts is based upon quoted market prices obtained from independent pricing services for similar derivative contracts and these financial instruments are characterized as Level 2 assets in the fair value hierarchy.

The estimated fair value of common stock purchase obligation is based on a combination of an income and market valuation approach. The income and market valuation approaches may incorporate Level 3 fair value measures for instances when observable inputs are not available. The more significant judgmental assumptions used to estimate the value of common stock purchase obligation include an estimated discount rate, a range of assumptions that form the basis of the expected future net cash flows (e.g., the revenue growth rates and operating margins), and a company specific beta. The significant judgmental assumptions used that incorporate market data, including the relative weighting of market observable information and the comparability of that information in the valuation models, are forward-looking and could be affected by future economic and market conditions.

The estimated fair value of pension obligation is based on expected years of service and average compensation. The valuation model used to value pension obligation utilizes mortality rate, inflation, interest rate risks and changes in

the life expectancy for pensioners. These assumptions are routinely made in the appraisal process by the independent actuary thus resulted in a Level 3 classification.

There were no transfers from Level 1 or Level 2. Fair value adjustments were noncash, and therefore did not impact the Company's liquidity or capital resources. Qualitative information about Level 3 fair value measurements is as follow:

(Dollars in millions, except rate/multiple)	December 31, 2021	Valuation Techniques	Unobservable Input	Rate/Multiple
Pension obligation	$ 4.0	Projected unit credit method	Discount rate	2.60%
			Rate on return	1.60%
			Salary increase rate	3.00%

Following is a summary of the Level 3 activity:

(In millions)	Pension obligation
As of December 25, 2020	$ 4.7
Benefits, payments and other adjustments	(0.7)
As of December 31, 2021	$ 4.0

5. GOODWILL AND INTANGIBLE ASSETS

The Company's methodology for allocating the purchase price relating to an acquisition is determined through established and generally accepted valuation techniques. Goodwill is measured as the excess of the consideration transferred over the sum of the amounts assigned to tangible and identifiable intangible assets acquired less liabilities assumed.

To test goodwill for impairment, the Company first performs a qualitative assessment to determine whether it is more likely than not that the fair value of a reporting unit is less than its carrying value. If the Company concludes it is more likely than not that the fair value of a reporting unit exceeds its carrying amount, the Company does not proceed to perform a quantitative impairment test. If the Company concludes it is more likely than not that the fair value of the reporting unit is less than its carrying value, a quantitative goodwill impairment test will be performed by comparing the fair value of each reporting unit to its carrying value. A quantitative impairment analysis, if necessary, considers the income approach, which requires estimates of the present value of expected future cash flows to determine a reporting unit's fair value. Significant estimates include revenue growth rates and operating margins used to calculate projected future cash flows, discount rates, and future economic and market conditions. A goodwill impairment charge is recognized for the amount by which the reporting unit's fair value is less than its carrying value. Any loss recognized should not exceed the total amount of goodwill allocated to that reporting unit. The process of evaluating the potential impairment of goodwill and intangible assets requires significant judgment. The Company regularly monitors current business conditions and other factors including, but not limited to, adverse industry or economic trends and lower projections of profitability that may impact future operating results.

In the fourth quarters of 2021 and 2020, the Company conducted its annual impairment tests of goodwill and concluded that there was no goodwill impairment with respect to its reporting units.

Details of aggregate goodwill of the Company are as follows:

(In millions)	Products	Services	Total
Balance at December 25, 2020	$ 97.6	$ 73.5	$ 171.1
Business combination	98.9	-	98.9
Balance at December 31, 2021	$ 196.5	$ 73.5	$ 270.0

Intangible Assets

Intangible assets are generally recorded in connection with a business acquisition. The Company evaluates the useful lives of its intangible assets each reporting period to determine whether events and circumstances require revising the remaining period of amortization. In addition, the Company reviews indefinite lived intangible assets for impairment when events or changes in circumstances indicate their carrying value may not be recoverable and tests definite lived intangible assets at least annually for impairment. Management considers such indicators as significant differences in product demand from the estimates, changes in the competitive and economic environment, technological advances, and changes in cost structure.

Details of intangible assets were as follows:

		As of December 31, 2021			As of December 25, 2020		
(Dollars in millions)	Useful Life (in years)	Gross Carrying Amount	Accumulated Amortization	Carrying Value	Gross Carrying Amount	Accumulated Amortization	Carrying Value
Customer relationships	6 - 10	$ 188.4	$ (66.9)	$ 121.5	$ 119.4	$ (50.6)	$ 68.8
Tradename	4 - 6*	36.8	(17.5)	19.3	27.0	(11.7)	$ 15.3
Intellectual property/know-how	7 - 15	49.4	(13.1)	36.3	13.9	(9.8)	$ 4.1
Backlog	1	4.3	(3.9)	0.4	-	-	-
Recipes	20	73.2	(12.2)	61.0	73.2	(8.5)	$ 64.7
Standard operating procedures	20	8.6	(1.4)	7.2	8.6	(1.0)	$ 7.6
Total		$ 360.7	$ (115.0)	$ 245.7	$ 242.1	$ (81.6)	$ 160.5

* The Company concluded that the asset life of UCT tradename of $9.0 million is indefinite and is therefore not amortized but is reviewed for impairment at least annually and whenever events or changes in circumstances indicate that the carrying value of an asset may not be recoverable.

Amortization expense was approximately $33.4 million for the year ended December 31, 2021, $19.8 million for the year ended December 25, 2020, and $20.1 million for the year ended December 27, 2019.

(In millions)	Amortization Expense
2022	$ 31.6
2023	25.9
2024	25.0
2025	22.7
2026	21.6
Thereafter	109.9
Total	$ 236.7

6. BORROWING ARRANGEMENTS

In August 2018, the Company entered into a credit agreement with Barclays Bank that provided a Term Loan, a Revolving Credit Facility, and a Letter of Credit Facility (the "Credit Facility"). UCT and certain of its subsidiaries have agreed to secure all of their obligations under the Credit Facility by granting a first priority lien in substantially all of their respective personal property assets (subject to certain exceptions and limitations).

In August 2018, the Company borrowed $350.0 million under the Term Loan and used the proceeds, together with cash on hand, to finance the acquisition of QGT and to refinance its previous credit facilities. On March 31, 2021, the Company entered into a Second Amendment (the "Second Amendment") to the Credit Agreement to, among other things, (i) refinance and reprice $272.8 million of existing term B borrowings that will remain outstanding and (ii) obtained a $355.0 million senior secured incremental term loan B facility ((i) and (ii) collectively the "Term Loan") with Barclays Bank, which increased the amount of term loan indebtedness outstanding under the Company's Credit Facility.

The Term Loan has a maturity date of August 27, 2025, with monthly interest payments in arrears, quarterly principal payments of 0.625% of the outstanding principal balance as of March 31, 2021, with the remaining principal paid upon maturity. Under the Credit Facility, the Company may elect that the Term Loan bear interest at a rate per annum equal to either (a) "ABR" (as defined in the Credit Agreement), plus the applicable margin or (b) the "Eurodollar Rate" (as defined in the Credit Agreement), based on LIBOR, plus the applicable margin. The applicable margin for the Term Loan is equal to a rate per annum to either (i) at any time that the Company's corporate family rating is Ba3 (with a stable outlook) or higher from Moody's and BB- (with a stable outlook) or higher from S&P, (x) 3.50% for such Eurodollar term loans and (y) 2.50% for such ABR term loans or (ii) at all other times, (x) 3.75% for such Eurodollar term loans and (y) 2.75% for such ABR term loans. Interest on the Term Loan is payable on (1) in the case of such ABR term loans, the last day of each calendar quarter and (2) in the case of such Eurodollar term loans, the last day of each relevant interest period and, in the case of any interest period longer than three months, on each successive date three months after the first day of such interest period. On March 29, 2021, the Company elected that the Term Loan outstanding as of March 31,2021, accrue interest based on the "Eurodollar Rate" for an initial interest period of one month. Pursuant to the Second Amendment to the Credit Agreement, the Credit Facility contains customary LIBOR replacement provisions in the event LIBOR is discontinued. At December 31, 2021, the Company had an outstanding amount under the Term Loan of $555.1 million, gross of unamortized debt issuance costs of $13.4 million. As of December 31, 2021, interest rate on the outstanding Term Loan was 3.9%.

The Credit Agreement requires the Company to maintain certain financial covenants including a consolidated fixed charge coverage ratio (as defined in the Credit Agreement) as of the last day of any fiscal quarter of at least 1.25 to 1.00, and a consolidated leverage ratio (as defined in the Credit Agreement) as of the last day of any fiscal quarter of no greater than 3.75 to 1.00. The Company was in compliance with all financial covenants during the year ended December 31, 2021.

In 2020, Cinos China amended its existing Credit Agreement and entered into two additional Credit Agreements with a local bank that provide a term loan of $1.9 million with maturity date through September 23, 2022 and interest rates of 4.1%. As of December 31, 2021, Cinos China had $1.4 million outstanding amount of under this credit facility.

Ham-Let has credit facilities and loan agreements with various financial institutions. As of December 31, 2021, Ham-Let had $8.9 million of outstanding debt with interest rate of 1.0%

The Revolving Credit Facility has an initial available commitment of $65.0 million and a maturity date of August 27, 2023. The Company pays a quarterly commitment fee in arrears equal to 0.25% of the average daily available commitment outstanding. As of December 31, 2021, the Company had no amount outstanding under this revolving credit facility.

The Letter of Credit Facility has an initial available commitment of $50.0 million and a maturity date of August 27, 2023. The Company pays quarterly in arrears a fee equal to 2.5% (subject to certain adjustments to the Term Loan) of the dollar equivalent of all outstanding letters of credit, and a fronting fee equal to 0.125% of the undrawn and unexpired amount of each letter of credit. As of December 31, 2021, the Company had $2.4 million of outstanding letters of credit with beneficiaries such as landlords of certain facility leases, insurance providers and government agencies making up the majority of the outstanding balance. The remaining available commitments of $47.6 million on the Letter of Credit Facility.

In 2020, Cinos China amended its existing Credit Agreement and entered into two additional Credit Agreements with a local bank that provide Revolving Credit Facilities for a total available commitment of $1.0 million with various maturity dates through September 23, 2022 and interest rates of 2.0%. As of December 31, 2021, Cinos China had an no outstanding amount under these Credit Facilities.

Cinos Korea has Credit Agreements with various banks that provide Revolving Credit Facilities for a total available commitment of 600.0 million Korean Won (approximately $0.5 million) with annual renewals beginning from April 2021 through June 2021 and interest rates of 2.9%. During the fiscal 2021, borrowings under these Revolving Facilities were insignificant and no amounts were outstanding as of December 31, 2021.

FDS has a credit agreement with a local bank in the Czech Republic that provides for a revolving credit facility in the aggregate of up to 6.0 million euros (approximately $6.8 million). As of December 31, 2021, the Company had no amount outstanding under this revolving credit facility.

As of December 31, 2021, the Company's total bank debt was $555.1 million, net of unamortized debt issuance costs of $13.4 million. As of December 31, 2021, the Company had $112.6 million, $6.8 million, $0.5 million and $1.0 million available to draw from its revolving credit facilities in the U.S., Czech Republic, South Korea and China, respectively.

The fair value of the Company's long-term debt was based on Level 2 inputs, and fair value was determined using quoted prices for similar liabilities in inactive markets. The Company's carrying value approximates fair value for the Company's long term-debt.

As of December 31, 2021, the Company's future debt principal payment obligations for the respective fiscal years were as follows:

(In millions)	Debt (Principal only)
2022	$ 13.8
2023	16.9
2024	15.7
2025	519.0
Total	$ 565.4

7. INCOME TAXES

The provision for income taxes consisted of the following:

	Year Ended		
(In millions)	December 31, 2021	December 25, 2020	December 27, 2019
Current:			
Federal	$ -	$ (0.1)	$ 0.1
State	1.0	0.9	0.1
Foreign	30.0	18.1	12.3
Total current	31.0	18.9	12.5
Deferred:			
Federal	0.3	0.3	(0.1)
State	0.4	0.5	0.7
Foreign	(3.8)	(0.4)	(3.1)
Total deferred	(3.1)	0.4	(2.5)
Total provision	$ 27.9	$ 19.3	$ 10.0

Income before provision for income taxes was generated from the following geographic areas:

	Year Ended		
(In millions)	December 31, 2021	December 25, 2020	December 27, 2019
United States	$ (42.1)	$ (24.5)	$ (49.7)
Foreign	196.4	124.2	52.0
Total pretax income	$ 154.3	$ 99.7	$ 2.3

The effective tax rate differs from the U.S. federal statutory tax rate as follows:

	Year Ended		
	December 31, 2021	December 25, 2020	December 27, 2019
Federal income tax provision at statutory rate	21.0 %	21.0 %	21.0 %
State income taxes, net of federal benefit	(0.1) %	0.6 %	(99.5) %
Effect of foreign operations	(10.3) %	(8.3) %	(85.3) %
Change in valuation allowance	2.9 %	(0.1) %	552.7 %
Foreign income inclusions	4.9 %	4.6 %	34.5 %
Nondeductible executive compensation	1.8 %	- %	- %
Common stock purchase obligation	- %	1.2 %	- %
Excess tax benefits related to stock-based compensation	(3.1) %	- %	- %
Income tax audit adjustment	- %	1.3 %	- %
Other	1.0 %	(1.0) %	(7.5) %
Effective Tax Rate	18.1 %	19.3 %	415.9 %

Significant components of deferred tax assets and liabilities are as follows:

	Year Ended	
(In millions)	December 31, 2021	December 25, 2020
Deferred tax assets:		
Inventory valuation and basis difference	$ 7.4	$ 3.9
State taxes	-	0.2
Stock compensation	1.8	1.7
Operating lease liabilities	11.4	10.0
Interest expense limitation	13.0	6.8
Intangibles	12.9	12.6
Net operating losses	11.2	6.4
Tax credits	4.2	2.6
Other timing differences	6.6	4.9
	68.5	49.1
Valuation allowance	(30.9)	(25.6)
Total deferred tax assets	37.6	23.5
Deferred tax liabilities:		
Undistributed earnings	(0.5)	(0.5)
Operating lease right-of-use assets	(10.8)	(8.5)
Depreciation	(8.7)	(5.0)
Intangibles	(19.7)	(6.7)
Goodwill	(15.2)	(12.9)
Total deferred tax liabilities	(54.9)	(33.6)
Net deferred tax liabilities	$ (17.3)	$ (10.1)

As of December 31, 2021, the Company had undistributed earnings of certain foreign subsidiaries of approximately $449.3 million that are considered indefinitely reinvested and on which we have not recognized deferred taxes. It is not practicable to determine the tax liability that might be incurred if these earnings were to be distributed. For undistributed earnings of foreign subsidiaries which are not considered indefinitely reinvested deferred taxes have been accrued.

As of December 31, 2021, a valuation allowance of $30.9 million was established for deferred tax assets related to U.S. federal and state assets and certain foreign assets. For fiscal 2021, the increase in the valuation allowance was $5.3 million.

The Company's gross liability for unrecognized tax benefits as of December 31, 2021 and December 25, 2020 was $1.6 million and $0.9 million, respectively. If the remaining balance of unrecognized tax benefits were recognized in a future period, it would result in a tax benefit of $1.3 million as of December 31, 2021 ($0.9 million as of December 25, 2020) and a reduction in the effective tax rate. Increases or decreases to interest and penalties on uncertain tax positions are included in the income tax provision in the Consolidated Statements of Operations. Interest related to uncertain tax positions for the periods ended December 31, 2021, December 25, 2020 and December 27, 2019, were $0.2 million, $0.3 million, and $0.3 million, respectively. There are no penalties accrued within the liability for unrecognized benefits. Although it is possible some of the unrecognized tax benefits could be settled within the next twelve months, the Company cannot reasonably estimate the outcome at this time.

The following table summarizes the activity related to the Company's unrecognized tax benefits (in millions):

Balance as of December 28, 2018	$	1.0
Expiration of the statute of limitations		-
Balance as of December 27, 2019	$	1.0
Expiration of the statute of limitations for the assessment of taxes		(0.1)
Balance as of December 25, 2020	$	0.9
Increases related to prior year tax positions		0.2
Increases related to current year tax positions		0.7
Expiration of the statute of limitations for the assessment of taxes		(0.2)
Balance as of December 31, 2021	$	1.6

As of December 31, 2021, the Company had California and foreign net operating loss carryforwards ("NOLs") of approximately $46.9 million and $38.8 million, respectively. The California NOLs begin expiring after 2031 and the foreign NOLs begin expiring after 2022. The Company also had federal tax credit carryforwards of approximately $4.1 million which expire in various years from fiscal 2028 through 2041.

The Company files federal, state and foreign income tax returns in several U.S. and foreign jurisdictions. The federal statute of limitation has closed for years prior to 2018. State statutes of limitation are generally closed for years prior to 2017. The statute of limitation for significant foreign jurisdictions has closed for years prior to 2018.

During the fiscal quarter ended December 25, 2020, the Company recorded a net charge to provision for income taxes of approximately $1.3 million related to the settlement of an income tax audit by the local tax authorities of Cinos Korea. The net settlement reflects additional taxes and associated penalties for the tax years 2015 to 2019.

The Company is operating under a Development and Expansion Incentive ("DEI") in Singapore which is effective through 2023. The DEI reduces the local tax on certain Singapore income from a statutory rate of 17.0% to 5.0%. The Company has also been granted a tax holiday in Malaysia, subject to certain conditions. The Malaysia tax holiday period is expected to commence in fiscal year 2022.

8. RETIREMENT PLANS

Defined Benefit Plan

Cinos Korea has a noncontributory defined benefit pension plan covering substantially all of its employees upon their retirement. Ham-Let has noncontributory defined benefit pension plans covering its employees in Israel and South Korea upon their retirement. The benefits for these plans are based on expected years of service and average compensation. The net period costs are recognized as employees render the services necessary to earn the postretirement benefits. The Company records annual amounts relating to the pension plan based on calculations that incorporate various actuarial and other assumptions, including discount rates, mortality, assumed rates of return, compensation increases and turnover rates. The Company reviews its assumptions on an annual basis and makes modifications to the assumptions based on current and expected rates of return and trends when it is appropriate to do so. The effect of modifications to those assumptions is recorded in accumulated other comprehensive income and amortized to net periodic cost over future periods using the corridor method. The Company believes that the assumptions utilized in recording its obligations under the plan are reasonable based on its experience and market conditions.

As of December 31, 2021, the benefit obligation of the plans is $14.3 million and the fair value of the benefit plan assets, which are invested in several fixed deposit accounts with financial institutions is $10.3 million. As of December 31, 2021, the unfunded balance of the plans of $4.0 million has been accrued for by the Company and is included in other long-term liabilities. Amounts recognized in the Consolidated Statement of Operations for the years ended December 31, 2021 and December 25, 2020 was $2.5 million and $1.6 million, respectively. Amounts recognized in accumulated other comprehensive income as of December 31, 2021 and December 25, 2020, was $1.2 million and $0.5 million, respectively. The contributions to the plans by the Company and its subsidiaries during the years ended December 31, 2021 and December 25, 2020, was $3.2 million and $2.8 million, respectively.

As of December 31, 2021, the Company's future payment obligations for the respective fiscal years are as follows:

(In millions)		
2022	$	1.3
2023		1.4
2024		3.1
2025		1.1
2026		1.9
Thereafter		5.9
Total	$	14.7

Employee Savings and Retirement Plan

The Company sponsors a 401(k) savings and retirement plan (the "401(k) Plan") for all US employees who meet certain eligibility requirements. Participants could elect to contribute to the 401(k) Plan, on a pre-tax basis, up to 25.0% of their salary to a maximum of the IRS limit. The Company matches 50.0% of participant salary up to 6.0% of employee contributions based upon eligibility. The Company made discretionary employer contributions of approximately $2.7 million, $2.3 million and $1.2 million to the 401(k) Plan in 2021, 2020 and 2019, respectively.

9. COMMITMENTS AND CONTINGENCIES

Commitment

The Company had commitments to various third parties to purchase inventories totaling approximately $562.5 million at December 31, 2021.

Contingency

From time to time, the Company is subject to various legal proceedings and claims, either asserted or unasserted, that arise in the ordinary course of business. Although the outcome of the various legal proceedings and claims individually or in the aggregate cannot be predicted with certainty, the Company has not had a history of outcomes

to date that have been material to the statement of operations and does not believe that any of these proceedings or other claims will have a material adverse effect on its consolidated financial condition, results of operations or cash flows.

10. STOCKHOLDERS' EQUITY AND NONCONTROLLING INTERESTS

Equity Financings

During April 2021, the Company completed an underwritten public offering of 3.7 million shares of the Company's common stock, for which the Company received net proceeds of approximately $192.8 million, after deducting the underwriting discounts and offering expenses payable by the Company.

Noncontrolling Interests

QGT, through its wholly-owned subsidiary in Singapore, owns part of the outstanding shares of Cinos Korea, a South Korean company that provides outsourced cleaning and recycling of precision parts for the semiconductor industry through its operating facilities in South Korea and through a partial interest in Cinos China.

The carrying value of the remaining interest held by another shareholder in Cinos Korea and the remaining interest in Cinos China are presented as noncontrolling interests in the accompanying Consolidated Financial Statements. The fair values of the noncontrolling interests were estimated based on the values of Cinos Korea and Cinos China on a 100.0% basis. The values were calculated based on the pro-rata portion of total QGT earnings before interest expense, taxes, depreciation and amortization contributed by each entity.

On July 24, 2021, the Company entered into an amendment with Cinos Korea and a shareholder of Cinos Korea to eliminate the obligation to purchase certain shares of the common stock owned by the shareholder. As a result, the carrying amount of noncontrolling interest in Cinos Korea was increased by 35.0%. The common stock purchase obligation of $16.5 million was reclassified to noncontrolling interest in the third quarter of fiscal 2021.

Rovac Pte, Ltd., which is based in Singapore, is a majority-owned company of Ham-Let. The carrying value of the remaining interest held by another shareholder in Rovac is presented as noncontrolling interests in the accompanying Consolidated Financial Statements.

11. EMPLOYEE STOCK PLANS

Employee Stock Plans

The Company grants stock awards in the form of restricted stock units ("RSUs") and performance stock units ("PSUs") to its employees as part of the Company's long-term equity compensation plan. These stock awards are granted to employees with a unit purchase price of zero dollars and typically vest over three years, subject to the employee's continued service with the Company and, in the case of PSUs, subject to achieving certain performance goals and market conditions. The Company also grants common stock to its board members in the form of restricted stock awards ("RSAs"), which vest on the earlier of 1) the next Annual Shareholder Meeting, or 2) 365 days from date of grant.

Stock-based compensation expense includes compensation costs related to estimated fair values of awards granted. The estimated fair value of the Company's equity-based awards, net of expected forfeitures, is amortized on a straight-line basis over the awards' vesting period and is adjusted for subsequent changes in estimated forfeitures related to all equity-based awards and performance as it relates to PSU's.

Total stock-based compensation during the fiscal years 2021, 2020 and 2019, respectively, in various expense categories was as follows:

(In millions)	Year Ended December 31, 2021	December 25, 2020	December 27, 2019
Cost of revenues (1)	$ 2.0	$ 1.8	$ 2.4
Research and development	0.2	0.1	0.3
Sales and marketing	1.3	1.3	1.3
General and administrative	12.3	9.5	8.1
Total stock-based compensation	15.8	12.7	12.1
Income tax benefit	(2.8)	(2.5)	-
Net stock-based compensation expense	$ 13.0	$ 10.2	$ 12.1

(1) Stock-based compensation expenses capitalized in inventory for fiscal years 2021, 2020 and 2019 were considered immaterial.

As of December 31, 2021, there was $21.1 million, net of forfeitures of $3.4 million of unrecognized compensation cost related to employee and director awards which is expected to be recognized on a straight-line basis over a weighted average period of approximately 1.4 years, and will be adjusted for subsequent changes in future grants.

For the fiscal years ended 2021, 2020 and 2019, vested shares of 0.1 million, 0.1 million and 0.1 million, respectively, were withheld to satisfy withholding tax obligations, resulting in the net issuance of 0.7 million, 0.6 million and 0.6 million shares, respectively.

Restricted Stock Units, Performance Stock Units and Restricted Stock Awards

The following table summarizes the Company's PSUs, RSUs and RSAs activities through the year ended December 31, 2021:

	Number of Shares	Aggregate Intrinsic Value (in millions)
Unvested restricted stock units and restricted stock awards at December 27, 2019	1.8	$ 41.9
Granted	0.9	
Vested	(0.8)	
Forfeited	(0.2)	
Unvested restricted stock units and restricted stock awards at December 25, 2020	1.7	$ 54.1
Granted	0.4	23.6
Vested	(0.8)	
Forfeited	(0.1)	
Unvested restricted stock units and restricted stock awards at December 31, 2021	1.2	$ 69.3
Vested and expected to vest restricted stock units and restricted stock awards	1.1	$ 62.8

The RSU awards are granted to employees with a unit purchase price of zero dollars and typically vest over three years, subject to the employee's continued service with the Company. During the year ended December 31, 2021, the Company approved and granted 406,473 RSU's to employees with a weighted average grant date fair value of $48.94 per share.

The Company also approved and granted 51,935 PSUs with a grant date fair value of $52.73 per share. These PSUs also contained a market condition component, Total Shareholder Return ("TSR") that added a weighted average grant date fair value of $6.75 per share.

Under the 2021 PSU program, performance goals are set at the time of grant and performance is reviewed at the end of a three-year period. The percentage to be applied to each participant's target award ranges from zero to 200% based upon the extent to which the financial performance goals are achieved. If specific performance threshold levels for the financial goals are met on an annual basis, the amount earned for that element will be applied to one-third of the participants' 2021 PSU award to determine the number of total units earned.

At the end of the three-year performance period, the total units earned, if any, are adjusted by applying two modifiers, each ranging from 25% to (25)% based on (i) the Company's relative total shareholder return ("TSR") compounded annual growth rate ("CAGR") which is based on the Company's stock price changes relative to a group of peer companies and (ii) the "average annual difference in operating margin" is defined as non-GAAP operating margin divided by GAAP total revenue comparing the annual operating plan to actual results.

The TSR modifier is intended to ensure that there are limited or no payouts under the 2021 PSU program if the Company's stock performance is significantly below the median TSR. Where the financial goals have been met and where there has been strong relative TSR performance over the three-year performance period, the 2021 PSU program may provide substantial rewards to participants with a maximum payout of two times the initial 2021 PSU award.

For awards that contain market conditions, compensation expense is measured using a Monte Carlo simulation model and recognized over the requisite service period based on the expected market performance as of the grant date. For the 2021 PSU awards, the Company used the following inputs for the Monte Carlo simulation: grant date stock price of $52.73, simulation term of 2.67 years, expected volatility of 64.69%, correlation coefficients using the same daily stock prices used for expected volatilities for both the Company and the peer group, risk free interest rate of 0.29%, which is the linear interpolation based on yields on the 2-year and 3-year rates for U.S. Treasury STRIPS and a dividend yield of zero, since the Company has not nor expects to pay a dividend.

Recipients of PSU awards generally must remain employed by the Company on a continuous basis through the end of the three-year performance period in order to receive any amount of the PSUs covered by that award. In events such as death, disability or retirement, the recipient may be entitled to pro-rata amounts of PSUs as defined in the Plan. Target shares subject to PSU awards do not have voting rights of common stock until earned and issued following the end of the three-year performance period.

In fiscal years 2021, 2020 and 2019, the Company granted 18,893, 46,363 and 69,783 shares, respectively, of common stock to its board members under the 2003 Incentive Plan. The total unamortized expense of the Company's unvested RSAs as of December 31, 2021, is approximately $0.4 million.

Options

There was no stock-based compensation expense for fiscal years 2021, 2020 and 2019, attributable to stock options and no outstanding stock options as of December 31, 2021.

Employee Stock Purchase Plan

The ESPP permits employees to purchase common stock at a discount through payroll withholdings at certain specified dates (purchase period) within a defined offering period. The purchase price is 95% of the fair market value of the common stock at the end of the purchase period and is intended to qualify as an "employee stock purchase plan" under Section 423 of the Internal Revenue Code. There were 17,907 shares issued under the ESPP during the year ended December 31, 2021.

The Company recorded $0.3 million, $0.1 million and $0.1 million of stock-based compensation expense related to ESPP for fiscal years 2021, 2020 and 2019, respectively.

12. REVENUE RECOGNITION

Revenue is recognized when control of the promised goods or services is transferred to the Company's customers, in an amount that reflects the consideration the Company expects to be entitled to in exchange for those goods or services.

The Company sells its products and services primarily to customers in the semiconductor capital equipment industry. The Company's revenues are highly concentrated, and we are therefore highly dependent upon a small number of customers. Typical payment terms with our customers range from 30 to 90 days.

The Company's Products business segment provides warranty on its products for a period of up to two years and provides for warranty costs at the time of sale based on historical activity. Determination of the warranty reserve requires the Company to make estimates of product return rates and expected costs to repair or replace the products under warranty. If actual return rates and/or repair and replacement costs differ significantly from these estimates, adjustments to recognize additional cost of revenues may be required in future periods. The warranty reserve is included in other current liabilities on the Consolidated Balance Sheets and is not considered significant.

The Company's products are manufactured, and services provided at our locations throughout North America, Asia Pacific, Europe and the Middle East ("EMEA"). Sales to customers are initiated through a purchase order and are governed by our standard terms and conditions, written agreements, or both. Revenue is recognized when performance obligations under the terms of an agreement with a customer are satisfied; generally, this occurs with the transfer of control of the products or when the Company provides the services. Transfer of control occurs at a specific point-in-time. Based on the enforceable rights included in our agreements or prevailing terms and conditions, products produced by the Company without an alternative use are not protected by an enforceable right of payment that includes a reasonable profit throughout the duration of the agreement. Consignment sales are recognized in revenue at the earlier of the period that the goods are consumed or after a period of time subsequent to receipt by the customer as specified by terms of the agreement, provided control of the promised goods or services has transferred.

Revenue is measured as the amount of consideration we expect to receive in exchange for transferring goods or providing services. Sales, value-add, and other taxes we collect concurrent with revenue-producing activities are excluded from revenue. Certain of our customers may receive cash-based incentives, such as rebates or credits, which are accounted for as variable consideration. We estimate these amounts based on the expected amount to be provided to customers and reduce revenues recognized. As of December 31, 2021, an accrual for unpaid customer rebates of $5.1 million is included in accounts receivable on the Company's Consolidated Balance Sheet. The Company's disaggregated revenues are by segments.

The Company's principal markets include America, Asia Pacific and EMEA. The Company's foreign operations are conducted primarily through its subsidiaries in China, Singapore, Israel, Taiwan, South Korea, United Kingdom and the Czech Republic. Revenues by geographic area are categorized based on the customer's location to which the products were shipped or services performed. The following table sets forth revenue by geographic area (in millions):

	Year Ended		
	December 31, 2021	December 25, 2020	December 27, 2019
United States	$ 734.4	$ 613.7	$ 546.2
Singapore	778.5	494.4	302.1
South Korea	152.7	83.7	68.2
Austria	98.5	57.4	47.7
Taiwan	88.1	68.1	44.4
China	99.9	47.7	35.3
Israel	22.3	16.1	-
Others	127.2	17.5	22.3
Total	$ 2,101.6	$ 1,398.6	$ 1,066.2

13. LEASES

The Company leases offices, facilities and equipment in locations throughout the United States, Asia Pacific and EMEA. The Company's leases do not provide an implicit rate; thus, the Company uses an estimated incremental borrowing rate in determining the present value of lease payments. The components of lease expense were summarized as follows:

	Year Ended	
(Dollars in millions)	**December 31, 2021**	**December 25, 2020**
Operating lease cost	$ 18.9	$ 13.1
Short-term lease cost	1.9	1.3
Sublease income	(0.1)	(0.1)
Total lease cost	$ 20.7	$ 14.3
Operating cash flows from operating leases	$ 20.4	$ 16.9
Weighted-average remaining lease term – operating leases	1.2	2.3
Weighted-average discount rate – operating leases	5.5%	5.5%

Future minimum payments under operating leases as of December 31, 2021 were summarized as follows:

(In millions)	**Operating Leases**
2022	$ 19.7
2023	16.7
2024	13.6
2025	11.0
2026	9.8
Thereafter	25.5
Total minimum lease payments	96.3
Less: imputed interest	(13.1)
Lease liability	$ 83.2

14. NET INCOME PER SHARE

The following is a reconciliation of the numerators and denominators used in computing basic and diluted net income (loss) per share:

	Year Ended		
(In millions, except share amounts)	**December 31, 2021**	**December 25, 2020**	**December 27, 2019**
Numerator:			
Net income (loss) attributable to UCT	$ 119.5	$ 77.6	$ (9.4)
Denominator:			
Shares used in computation — basic:			
Weighted average common shares outstanding	43.5	40.2	39.5
Shares used in computation — diluted:			
Weighted average common shares outstanding	43.5	40.2	39.5
Dilutive effect of common shares outstanding subject to repurchase	0.9	0.9	0.0
Shares used in computing diluted net income (loss) per share	44.4	41.1	39.5
Net income (loss) per share attributable to UCT — basic	$ 2.75	$ 1.93	$ (0.24)
Net income (loss) per share attributable to UCT — diluted	$ 2.69	$ 1.89	$ (0.24)

15. REPORTABLE SEGMENTS

The Company prepares financial results based on three operating segments and two reportable segments: Products and Services. These segments are organized primarily by the nature of the products and service they provide. Ham-Let was added to the Products segment. The Company's Chief Executive Officer (chief operating decision maker) views and evaluates operations based on the results of each of the reportable segments. The following table describes each segment:

Segment	Product or Services	Markets Served	Geographic Areas
Products	Assembly Weldments Machining Fabrication	Semiconductor	United States Asia Pacific EMEA
Services	Cleaning Coating Analytics	Semiconductor	United States Asia Pacific EMEA

The Company uses segment profit or loss as the primary measure of profitability to evaluate operating performance and to allocate capital resources. Segment profit or loss is defined as a segment's income or loss from continuing operations before other income and income taxes included in the accompanying consolidated statements of operations.

Any intercompany sales and associated profit (and any other intercompany items) are eliminated from segment results. There were no significant intercompany eliminations for the periods presented.

	Fiscal Year End		
(In millions)	December 31, 2021	December 25, 2020	December 27, 2019
Revenues:			
Products	$ 1,803.9	$ 1,131.2	$ 840.8
Services	297.7	267.4	225
Total segment revenues	$ 2,101.6	$ 1,398.6	$ 1,066.2
Gross profit:			
Products	$ 325.2	$ 196.5	$ 121.8
Services	104.8	95.3	75.0
Total segment gross profit	$ 430.0	$ 291.8	$ 196.8
Operating profit:			
Products	$ 154.3	$ 97.2	$ 18.3
Services	31.4	24.2	11.6
Total segment operating profit	$ 185.7	$ 121.4	$ 29.9

(In millions)	December 31, 2021	December 25, 2020
Assets		
Products	$ 1,757.6	$ 868.4
Services	267.8	234.1
Total segment assets	$ 2,025.4	$ 1,102.5

16. GOVERNMENT SUBSIDIES

From April through December of 2020, the Singapore government announced a series of relief measures for wages paid to local employees with the purpose of supporting employers during this period of economic uncertainty related to the COVID-19 pandemic, including the co-funding of wages incurred by local employers in fiscal 2020. The Company recorded a total amount $3.1 million subsidies in fiscal 2020.

The Company also received unconditional subsidies of $0.7 million and $1.5 million from the Chinese government during fiscal 2021 and 2020, respectively. These subsidies were recognized as other income in the consolidated statements of operations. In addition, the Chinese government reduced the cost of certain social insurance requirements and also subsidized rent which benefited the Company by $1.6 million in fiscal 2020. These subsidies were recorded as an offset to cost of revenues and other operating expenses.

Item 9. Changes in and Disagreements with Accountants on Accounting and Financial Disclosure

Not Applicable

Item 9A. Controls and Procedures

Disclosure Controls and Procedures

Rule 13a-15 of the Securities and Exchange Act of 1934, as amended, requires that we conduct an evaluation of the effectiveness of our disclosure controls and procedures as of the end of the period covered by this Annual Report, and we have a disclosure policy in furtherance of the same. This evaluation is designed to ensure that all corporate disclosure is complete and accurate in all material respects. The evaluation is further designed to ensure that all information required to be disclosed in our SEC reports is accumulated and communicated to management to allow timely decisions regarding required disclosures and recorded, processed, summarized and reported within the time periods and in the manner specified in the SEC's rules and forms. Any controls and procedures, no matter how well designed and operated, can provide only reasonable assurance of achieving the desired control objectives. Our Chief Executive Officer and Chief Financial Officer supervise and participate in this evaluation, and they are assisted by our Chief Accounting Officer and other members of our Disclosure Committee.

We conducted the required evaluation, and our Chief Executive Officer and Chief Financial Officer have concluded that our disclosure controls and procedures (as defined by Securities Exchange Act Rule 13a-15(e)) were effective as of December 31, 2021.

Management's Report on Internal Control Over Financial Reporting

Our management is responsible for establishing and maintaining adequate internal control over financial reporting, as such term is defined in Securities Exchange Act Rules 13a-15(f), including maintenance of (i) records that in reasonable detail accurately and fairly reflect the transactions and dispositions of our assets, and (ii) policies and procedures that provide reasonable assurance that (a) transactions are recorded as necessary to permit preparation of financial statements in accordance with accounting principles generally accepted in the United States of America, (b) our receipts and expenditures are being made only in accordance with authorizations of management and our board of directors and (c) we will prevent or timely detect unauthorized acquisition, use, or disposition of our assets that could have a material effect on the financial statements.

Internal control over financial reporting cannot provide absolute assurance of achieving financial reporting objectives because of the inherent limitations of any system of internal control. Internal control over financial reporting is a process that involves human diligence and compliance and is subject to lapses of judgment and breakdowns resulting from human failures. Internal control over financial reporting also can be circumvented by collusion or improper overriding of controls. As a result of such limitations, there is risk that material misstatements may not be prevented or detected on a timely basis by internal control over financial reporting. However, these inherent limitations are known features of the financial reporting process. Therefore, it is possible to design into the process safeguards to reduce, though not eliminate, this risk.

Under the supervision and with the participation of our management, including our Chief Executive Officer and Chief Financial Officer, we conducted an evaluation of the effectiveness of our internal control over financial reporting based on the criteria established in *Internal Control-Integrated Framework (2013)* issued by the Committee of Sponsoring Organizations (COSO) of the Treadway Commission. Our assessment also excluded internal control over financial reporting at Ham-Let, which was acquired on March 31, 2021 and whose financial statements constitute 13.5% and 8.9% of the Company's consolidated total assets (excluding $203.6 million of goodwill and intangible assets, net) and revenue, respectively for the fiscal year 2021. We will include this acquired entity in our assessment of the effectiveness of internal controls over financial reporting in the fiscal year 2022 annual management report, the annual management report following the first anniversary of the acquisition. Based on this evaluation, management concluded that the Company's internal control over financial reporting was effective as of December 31, 2021.

Our independent registered public accounting firm, Moss Adams LLP, who audited the consolidated financial statements included in this Annual Report on Form 10-K, has expressed an unqualified opinion on the operating effectiveness of the Company's internal control over financial reporting as of December 31, 2021, as stated in their report which appears in this Form 10-K.

Changes in Internal Control Over Financial Reporting

There were no changes in our internal control over financial reporting during the fiscal fourth quarter ended December 31, 2021 that have materially affected, or are reasonably likely to materially affect, our internal control over financial reporting.

Item 9B. Other Information

None.

PART III

Pursuant to Paragraph G (3) of the General Instructions to Form 10-K, portions of the information required by Part III of Form 10-K are incorporated by reference from our definitive Proxy Statement to be filed with the SEC in connection with our 2022 Annual Meeting of Stockholders.

Item 10. Directors and Executive Officers of the Registrant

The information required by this item concerning directors is incorporated by reference to the section entitled, "Election of Directors" in our Proxy Statement for the 2022 Annual Meeting of Stockholders.

For information with respect to Executive Officers, see Part I, Item 1 of this Annual Report on Form 10-K, under "Executive Officers."

The information required by this item with respect to Section 16(a) beneficial reporting compliance is incorporated by reference to the section entitled, "Section 16(a) Beneficial Ownership Reporting Compliance" in our Proxy Statement for the 2022 Annual Meeting of Stockholders.

We have adopted a Code of Business Conduct and Ethics that is designed to qualify as a "code of ethics" within the meaning of Section 406 of the Sarbanes-Oxley Act of 2002 and the rules promulgated thereunder. This code of ethics is available on our website at *www.uct.com*. To the extent required by law, any amendments to, or waivers from, any provision of the code of ethics will be promptly disclosed to the public. To the extent permitted by such legal requirements, we intend to make such public disclosure by posting the relative material on our website in accordance with SEC rules.

Item 11. Executive Compensation

The information required by this item regarding the security ownership of certain beneficial owners is incorporated by reference to the sections entitled "Executive Officer Compensation" and "Election of Directors" in our Proxy Statement for the 2022 Annual Meeting of Stockholders.

Item 12. Security Ownership of Certain Beneficial Owners and Management and Related Stockholder Matters

The information required by this item is incorporated by reference to the sections entitled "Security Ownership of Certain Beneficial Owners and Management" in our Proxy Statement for the 2022 Annual Meeting of Stockholders.

The table below summarizes our equity plan information as of December 31, 2021:

(Shares in millions) Plan Category	(a) Number of Securities to be Issued Upon Exercise/Vest of Outstanding Options, Awards Warrants and Rights	(b) Weighted-Average Exercise Price of Outstanding Options, Warrants and Rights	(c) (1) Number of Securities Remaining Available for Future Issuance Under Equity Compensation Plans (Excluding Securities Reflected in Column (a)
Equity compensation plans approved by security holders:	1.2	$ —	1.2
Equity compensation plans not approved by security holders	—	—	—
Total	1.2	$ —	1.2

(1) Consists of the 2003 Stock Incentive Plan, as amended, and, for purposes of column (c), the Employee Stock Purchase Plan. Since restricted stock units do not have an exercise price, they are excluded from the calculations in column (b) of the table above.

Item 13. Certain Relationships and Related Transactions

The information required by this item is incorporated by reference to the section entitled "Certain Relationships and Related Party Transactions" in our Proxy Statement for the 2022 Annual Meeting of Stockholders.

Item 14. Principal Accountant Fees and Services

The information required by this item is incorporated by reference to the section entitled "Ratification of the Appointment of Our Independent Registered Public Accounting Firm" in our Proxy Statement for the 2022 Annual Meeting of Stockholders.

Auditor Firm Id:	659	Auditor Name:	Moss Adams LLP	Auditor Location:	Seattle, WA United States

Part IV

Item 15. Exhibits, Financial Statement Schedules

(a) The following documents are filed as part of this Form 10-K:

1. Financial Statements:

	Form 10-K Page No.
Report of Independent Registered Public Accounting Firm	43
Consolidated Balance Sheets	46
Consolidated Statements of Operations	47
Consolidated Statements of Comprehensive Income (Loss)	48
Consolidated Statements of Cash Flows	49
Consolidated Statements of Stockholders' Equity	50
Notes to Consolidated Financial Statements	51

2. Financial statement schedules not listed have been omitted because they are not applicable or required, or the information required to be set forth therein is included in the Consolidated Financial Statements or Notes thereto.

3. Exhibits

Exhibit Index

Exhibit Number	Description	Form	File No.	Filing Date	Exhibit	Filed Herewith
2.1	Agreement and Plan of Merger, dated as of July 24, 2018, among Quantum Global Technologies, LLC, Ultra Clean Holdings, Inc., Falcon Merger Subsidiary, LLC and G-Squared Partners, LLC (as the representative of the unitholders of the Company)	8-K	000-50646	July 25, 2018	2.1	
3.1	Amended and Restated Certificate of Incorporation of Ultra Clean Holdings, Inc.	S-1/A	333-11904	March 2, 2004	3.1	
3.2	Amended and Restated Bylaws of Ultra Clean Holdings, Inc.	10-Q	000-50646	May 2, 2016	3.1	
4.1	Specimen Stock Certificate	S-1/A	333-11904	March 8, 2004	4.1	
4.2	Description of Securities Registered Under Section 12 of the Exchange Act					X
10.1†	Ultra Clean Holdings, Inc. Amended and Restated Stock Incentive Plan (as amended)	8-K	000-50646	May 24, 2019	10.1	
10.2†	Form of Stock Option Agreement	S-1/A	333-11904	March 8, 2004	10.6	
10.3†	Form of Award Agreement	S-1/A	333-11904	March 8, 2004	10.13	
10.4†	Form of Restricted Stock Unit Award Agreement	10-K	000-50646	March 12, 2008	10.18	
10.5†	Employee Stock Purchase Plan (restated as of October 21, 2004)	10-Q	000-50646	November 8, 2004	10.9.1	
10.6†	Form of Indemnification Agreement between Ultra Clean Holdings, Inc. and each of its directors and executive officers	S-1/A	333-11904	March 2, 2004	10.10	
10.7†	Severance Policy for Executive Officers (amended as of October 26, 2018)	8-K	000-50646	November 1, 2018	10.1	
10.8†	Offer Letter between Ultra Clean Holdings, Inc. and James P. Scholhamer dated January 3, 2015	8-K	000-50646	January 5, 2015	99.1	
10.9†	Change in Control Severance Agreement dated as of January 19, 2015 by and between Ultra Clean Holdings, Inc. and James P. Scholhamer	10-K	000-50646	March 11, 2015	10.18	
10.10†	Promotion Letter between Ultra Clean Holdings, Inc. and Sheri Savage (previously Sheri Brumm) dated February 18, 2016	10-K	000-50646	March 9, 2016	10.18	
10.11†	Offer Letter between Ultra Clean Holdings, Inc. and Sheri Savage (previously Sheri Brumm) dated July 7, 2016	8-K	000-50646	July 12, 2016	99.1	
10.12†	Change in Control Severance Agreement between Ultra Clean Holdings, Inc. and Sheri Savage (previously Sheri Brumm) dated July 7, 2016	8-K	000-50646	July 12, 2016	99.2	
10.13†	Amendment to Offer Letter and Change in Control Severance Agreement dated as of July 25, 2017 by and between Ultra Clean Holdings, Inc. and James P. Scholhamer	10-Q	000-50646	August 9, 2017	10.2	

Exhibit Number	Description	Form	File No.	Filing Date	Exhibit	Filed Herewith
10.14†	Form of Consulting Agreement	10-Q	000-50646	August 8, 2018	10.1	
10.15	Credit Agreement, dated as of August 27, 2018, among Ultra Clean Holdings, Inc., Barclays Bank PLC, as administrative agent, and the lenders party thereto	8-K	000-50646	August 31, 2018	10.1	
10.16	Guarantee and Collateral Agreement in favor of Barclays Bank PLC and the other Lenders party thereto, dated as of August 27, 2018, made by Ultra Clean Holdings, Inc. and the other Grantors referred to therein and from time to time party thereto	8-K	000-50646	August 31, 2018	10.2	
10.17	Amendment Agreement, dated as of October 1, 2018, among Ultra Clean Holdings, Inc., any Subsidiary Borrowers, Barclays Bank PLC, as administrative agent, and the lenders party thereto	8-K	000-50646	October 4, 2018	10.1	
10.18†	Form of Change in Control Severance Agreement for Executive Officers	8-K	000-50646	November 1, 2018	10.2	
10.19	Agreement and Plan of Merger by and among Ultra Clean Holdings, Inc., Sir Daibus Ltd., Bealish Ltd. and Ham-Let (Israel – Canada) Ltd.	8-K	000-50646	December 17, 2020	2.1	
21.1	Subsidiaries of Ultra Clean Holdings, Inc.					X
23.1	Consent of Moss Adams LLP, Independent Registered Public Accounting Firm					X
24.1	Power of Attorney (included on signature page)					X
31.1	Certification of Chief Executive Officer pursuant to Section 302 of the Sarbanes-Oxley Act of 2002					X
31.2	Certification of Chief Financial Officer pursuant to Section 302 of the Sarbanes-Oxley Act of 2002					X
32.1	Certification of Chief Executive Officer pursuant to 18 U.S.C. Section 1350, as adopted pursuant to Section 906 of the Sarbanes-Oxley Act of 2002					X
32.2	Certification of Chief Financial Officer pursuant to 18 U.S.C. Section 1350, as adopted pursuant to Section 906 of the Sarbanes-Oxley Act of 2002					X
101.INS	Inline XBRL Instance Document – the instance document does not appear in the Interactive Data File because XBRL tags are embedded within the Inline XBRL document.					
101.SCH	Inline XBRL Taxonomy Extension Schema Document					
101.CAL	Inline XBRL Taxonomy Extension Calculation Linkbase Document					
101.DEF	Inline XBRL Taxonomy Extension Definition Linkbase Document					
101.LAB	Inline XBRL Taxonomy Extension Label Linkbase Document					
101.PRE	Inline XBRL Taxonomy Extension Presentation Linkbase Document					
104	Cover Page Interactive Data File (embedded within the Inline XBRL document)					

† Denotes management contract or compensatory plan.

Item 16. Form 10-K Summary

None

SIGNATURES

Pursuant to the requirements of Section 13 or 15(d) of the Securities Exchange Act of 1934, the Registrant has duly caused this Report to be signed on its behalf by the undersigned, thereunto duly authorized.

Ultra Clean Holdings, Inc.

By: /S/ JAMES P. SCHOLHAMER
James P. Scholhamer
Chief Executive Officer

Date: March 1, 2022

KNOW ALL PERSONS BY THESE PRESENTS , that each person whose signature appears below constitutes and appoints James P. Scholhamer and Sheri Savage, and each of them, as his or her true and lawful attorneys-in-fact and agents, with full power of substitution and re-substitution, for him or her in any and all capacities, to sign any and all amendments to this Annual Report on Form 10-K and to file the same, with all exhibits thereto, and other documents in connection therewith, with the Securities and Exchange Commission hereby ratifying and confirming that each of said attorneys-in-fact and agents, or his substitute or substitutes, may lawfully do or cause to be done by virtue hereof.

Pursuant to the requirements of the Securities Exchange Act of 1934, this Report has been signed below by the following persons on behalf of the Registrant and in the capacities and on the dates indicated.

Signature	Title	Date
/S/ CLARENCE L. GRANGER **Clarence L. Granger**	Chairman	March 1, 2022
/S/ JAMES P. SCHOLHAMER **James P. Scholhamer**	Chief Executive Officer and Director (Principal Executive Officer)	March 1, 2022
/S/ SHERI SAVAGE **Sheri Savage**	Chief Financial Officer (Principal Financial Officer)	March 1, 2022
/S/ CHRIS P. SIU **Chris P. Siu**	Chief Accounting Officer (Principal Accounting Officer)	March 1, 2022
/S/ EMILY M. LIGGETT **Emily M. Liggett**	Director	March 1, 2022
/S/ THOMAS T. EDMAN **Thomas T. Edman**	Director	March 1, 2022
/S/ BARBARA V. SCHERER **Barbara V. Scherer**	Director	March 1, 2022
/S/ DAVID T. IBNALE **David T. IbnAle**	Director	March 1, 2022
/S/ ERNEST E. MADDOCK **Ernest E. Maddock**	Director	March 1, 2022
/S/ JACQUELINE A. SETO **Jacqueline A. Seto**	Director	March 1, 2022

Exhibit 4.2

DESCRIPTION OF THE REGISTRANT'S SECURITIES REGISTERED PURSUANT TO SECTION 12 OF THE SECURITIES EXCHANGE ACT OF 1934

The following summary of the terms of our capital stock is not meant to be complete and is qualified by reference to the relevant provisions of the Delaware General Corporation Law (the "DGCL") and our amended and restated certificate of incorporation (our "certificate of incorporation") and our amended and restated bylaws (our "bylaws"). We have summarized certain portions of the Certificate of Incorporation and Bylaws below. This information does not purport to be complete and is subject in all respects to the applicable provisions of our certificate of incorporation and bylaws, which are incorporated by reference herein.

Authorized Capital Stock

Our Certificate of Incorporation authorizes us to issue 90,000,000 shares of common stock, par value $0.001 per share, and 10,000,000 shares of preferred stock, par value $0.001 per share.

Common Stock

As of December 31, 2021, there were 44,933,382 shares of common stock outstanding and five stockholders of record. The holders of common stock are entitled to one vote per share on all matters to be voted upon by the stockholders. Subject to preferences that may be applicable to any outstanding preferred stock, the holders of common stock are entitled to receive ratably such dividends, if any, as may be declared from time to time by our board of directors out of funds legally available therefor. In the event of the liquidation, dissolution or winding up of Ultra Clean, the holders of common stock are entitled to share ratably in all assets remaining after payment of liabilities, subject to prior distribution rights of preferred stock, if any, then outstanding. The common stock has no preemptive or conversion rights or other subscription rights. There are no redemption or sinking fund provisions applicable to the common stock. All outstanding shares of common stock are fully paid and non-assessable.

Preferred Stock

Our board of directors is authorized, subject to any limitations imposed by law, without stockholder approval, from time to time to issue up to 10,000,000 shares of preferred stock in one or more series, each series to have rights and preferences, including voting rights, dividend rights, conversion rights, redemption privileges and liquidation preferences, as our board of directors may determine. The issuance of preferred stock, while providing desirable flexibility in connection with possible acquisitions and other corporate purposes, could have the effect of making it more difficult for a third party to acquire, or of discouraging a third party from attempting to acquire, a majority of our voting stock outstanding. We have no shares of preferred stock outstanding, and we have no present plans to issue any shares of preferred stock.

Certain Provisions of Our Certificate of Incorporation and Bylaws

Our Bylaws vest the power to call special meetings of stockholders in our chairman of the board and our board of directors. Stockholders are permitted under our Certificate of Incorporation to act by written consent in lieu of a meeting.

To be properly brought before an annual meeting of stockholders, any stockholder proposal or nomination for the board of directors must be delivered to our secretary not less than 90 days nor more than 120 days prior to the first anniversary of the prior year's annual meeting; provided, however, that in the event that the date of the annual meeting is advanced more than 30 days prior to such anniversary date or delayed more than 70 days after such anniversary date, then to be timely such notice must be received by us no earlier than 120 days prior to such annual meeting and no later than the later of 70 days prior to the day of the meeting or the 10th day following the day on which public announcement of the date of the meeting was first made by us. Such notice must contain information specified in the Bylaws as to the director

nominee or proposal of other business, information about the stockholder making the nomination or proposal and the beneficial owner, if any, on behalf of whom the nomination or proposal is made, including name and address, class and number of shares owned, and representations regarding the intention to make such a proposal or nomination and to solicit proxies in support of it.

Certain Anti-Takeover Effects of Delaware Law

We are subject to Section 203 of the Delaware General Corporation Law ("Section 203"). In general, Section 203 prohibits a publicly held Delaware corporation from engaging in various "business combination" transactions with any interested stockholder for a period of three years following the date of the transactions in which the person became an interested stockholder, unless:

- the transaction is approved by the board of directors prior to the date the interested stockholder obtained such status;
- upon consummation of the transaction which resulted in the stockholder becoming an interested stockholder, the interested stockholder owned at least 85% of the voting stock of the corporation outstanding at the time the transaction commenced; or
- on or subsequent to such date, the business combination is approved by the board and authorized at an annual or special meeting of stockholders by the affirmative vote of at least 66 2/3% of the outstanding voting stock which is not owned by the interested stockholder.

A "business combination" is defined to include mergers, asset sales, and other transactions resulting in financial benefit to a stockholder. In general, an "interested stockholder" is a person who, together with affiliates and associates, owns (or within three years, did own) 15% or more of a corporation's voting stock.

The statute could prohibit or delay mergers or other takeover or change in control attempts with respect to us and, accordingly, may discourage attempts to acquire us even though such a transaction may offer our stockholders the opportunity to sell their stock at a price above the prevailing market price.

Listing

Our common stock is listed on the NASDAQ Global Select Market under the symbol "UCTT."

Transfer Agent and Registrar

The transfer agent and registrar for the shares of our common stock is Equiniti Trust Company.

Exhibit 21.1

Ultra Clean Holdings, Inc.
List of Subsidiaries

Ultra Clean Technology Systems and Service, Inc. (a California corporation)

Ultra Clean International Holding Company (a Cayman Islands corporation)

Ultra Clean Micro-Electronics Equipment (Shanghai) Co., Ltd. (a Chinese company)

Ultra Clean Pacific Holdings PTE., Ltd. (a Singapore company)

Ultra Clean Technology (Malaysia) SDN. BHD. (a Malaysia company)

Far East International Holdings Ltd (a Hong Kong company)

Ultra Clean Asia Pacific, Pte Ltd (a Singapore company)

American Integration Technologies LLC (a Delaware limited liability company)

Integrated Flow Systems, LLC (a California limited liability company)

UCT Thermal Solutions, Inc. (a Delaware corporation)

Dash Acquisition Subsidiary, LLC (a Delaware limited liability company)

UCT Fluid Delivery Solutions s.r.o (a Czech Republic company)

Quantum Global Technologies, LLC (a Delaware limited liability company)

QuantumClean Technologies (S) Pte. Ltd. (a Singapore company)

QuantumClean Global – Israel Ltd. (an Israel company)

QuantumClean Global Technologies Ireland Limited (an Ireland company)

Quantum Global Technologies Holding Company, LLC (a Delaware limited liability company)

Quantum Global Technologies Korea Co., Ltd. (a South Korea company)

Cinos Co., Ltd. (a South Korea company)

Cinos Xian Clean Technology, Ltd. (a Chinese company)

Tainan Quantum Technologies Co. Ltd. (a Taiwan company)

Sir Daibus Ltd. (an Israel company)

Ham-Let (Israel-Canada) Ltd. (an Israel company)

S&S Valve Co., Ltd. (a South Korea company)

Ham-Let CFS Ltd. (a United Kingdom company)

CFS GmbH (a Germany company)

Norvalves A.S. (a Norway company)

HTC Ltd. (an Israel company)

UCT Incubator Ltd. (an Israel company)

Astava International B.V. (a Netherlands company)

Astava B.V. (a Netherlands company)

Ham-Let GmBH (a Germany company)

Polkas Sp. Z.o.o. (a Poland company)

Ham-Let Russia LLC (a Russia company)

Ham-Let France (a France company)

Ham-Let U.S.A., Inc. (a Texas corporation)

Ham-Let Singapore Valves & Fittings PTE Ltd. (a Singapore company)

Rovac Pte, Ltd. (a Singapore company)

Ham-Let (Canada) Fittings & Valves, Inc. (a Canada company)

Ham-Let Motoyama Japan Co., Ltd. (a Japan company)

Ham-Let Benelux B.V. (a Netherlands company)

Jiangsu Xinghe Valve Co., Ltd. (a Chinese company)

Ham-Let Shanghai Trade Co., Ltd. (a Chinese company)

Ham-Let (Thailand) Ltd. (a Thailand company)

Ham-Let (UK) Fittings & Valves Ltd. (a United Kingdom company)

Exhibit 23.1

Consent of Independent Registered Public Accounting Firm

We consent to the incorporation by reference in the Registration Statements on Form S-3 (No. 333-255039) and Form S-8 (No. 333-235574, No. 333-219447, No. 333-188995, No. 333-167530, No. 333-165782, No. 333-158108, No. 333-151335, No. 333-141989, No. 333-135147, No. 333-123820 and No. 333-114051) of our report dated March 1, 2022, relating to the consolidated financial statements of Ultra Clean Holdings, Inc. and the effectiveness of internal control over financial reporting of Ultra Clean Holdings, Inc. appearing in this Annual Report on Form 10-K for the year ended December 31, 2021.

/s/ Moss Adams LLP

San Francisco, California
March 1, 2022

EXHIBIT 31.1

CERTIFICATION

I, James P. Scholhamer, certify that:

1. I have reviewed this annual report on Form 10-K of Ultra Clean Holdings, Inc.;

2. Based on my knowledge, this report does not contain any untrue statement of a material fact or omit to state a material fact necessary to make the statements made, in light of the circumstances under which such statements were made, not misleading with respect to the period covered by this report;

3. Based on my knowledge, the financial statements, and other financial information included in this report, fairly present in all material respects the financial condition, results of operations and cash flows of the registrant as of, and for, the periods presented in this report;

4. The registrant's other certifying officer and I are responsible for establishing and maintaining disclosure controls and procedures (as defined in Exchange Act Rules 13a-15(e) and 15d-15(e)) and internal control over financial reporting (as defined in Exchange Act Rules 13a-15(f) and 15d-15(f)) for the registrant and have:

   (a) Designed such disclosure controls and procedures, or caused such disclosure controls and procedures to be designed under our supervision, to ensure that material information relating to the registrant, including its consolidated subsidiaries, is made known to us by others within those entities, particularly during the period in which this report is being prepared;

   (b) Designed such internal control over financial reporting, or caused such internal control over financial reporting to be designed under our supervision, to provide reasonable assurance regarding the reliability of financial reporting and the preparation of financial statements for external purposes in accordance with generally accepted accounting principles;

   (c) Evaluated the effectiveness of the registrant's disclosure controls and procedures and presented in this report our conclusions about the effectiveness of the disclosure controls and procedures, as of the end of the period covered by this report based on such evaluation; and

   (d) Disclosed in this report any change in the registrant's internal control over financial reporting that occurred during the registrant's most recent fiscal quarter (the registrant's fourth fiscal quarter in the case of an annual report) that has materially affected, or is reasonably likely to materially affect, the registrant's internal control over financial reporting; and

5. The registrant's other certifying officer and I have disclosed, based on our most recent evaluation of internal control over financial reporting, to the registrant's auditors and the audit committee of the registrant's board of directors (or persons performing the equivalent functions):

   (a) All significant deficiencies and material weaknesses in the design or operation of internal control over financial reporting which are reasonably likely to adversely affect the registrant's ability to record, process, summarize and report financial information; and

   (b) Any fraud, whether or not material, that involves management or other employees who have a significant role in the registrant's internal control over financial reporting.

Date: March 1, 2022

/s/ James P. Scholhamer
James P. Scholhamer
Chief Executive Officer

EXHIBIT 31.2

CERTIFICATION

I, Sheri Savage, certify that:

1. I have reviewed this annual report on Form 10-K of Ultra Clean Holdings, Inc.

2. Based on my knowledge, this report does not contain any untrue statement of a material fact or omit to state a material fact necessary to make the statements made, in light of the circumstances under which such statements were made, not misleading with respect to the period covered by this report;

3. Based on my knowledge, the financial statements, and other financial information included in this report, fairly present in all material respects the financial condition, results of operations and cash flows of the registrant as of, and for, the periods presented in this report;

4. The registrant's other certifying officer and I are responsible for establishing and maintaining disclosure controls and procedures (as defined in Exchange Act Rules 13a-15(e) and 15d-15(e)) and internal control over financial reporting (as defined in Exchange Act Rules 13a-15(f) and 15d-15(f)) for the registrant and have:

   (a) Designed such disclosure controls and procedures, or caused such disclosure controls and procedures to be designed under our supervision, to ensure that material information relating to the registrant, including its consolidated subsidiaries, is made known to us by others within those entities, particularly during the period in which this report is being prepared;

   (b) Designed such internal control over financial reporting, or caused such internal control over financial reporting to be designed under our supervision, to provide reasonable assurance regarding the reliability of financial reporting and the preparation of financial statements for external purposes in accordance with generally accepted accounting principles;

   (c) Evaluated the effectiveness of the registrant's disclosure controls and procedures and presented in this report our conclusions about the effectiveness of the disclosure controls and procedures, as of the end of the period covered by this report based on such evaluation; and

   (d) Disclosed in this report any change in the registrant's internal control over financial reporting that occurred during the registrant's most recent fiscal quarter (the registrant's fourth fiscal quarter in the case of an annual report) that has materially affected, or is reasonably likely to materially affect, the registrant's internal control over financial reporting; and

5. The registrant's other certifying officer and I have disclosed, based on our most recent evaluation of internal control over financial reporting, to the registrant's auditors and the audit committee of the registrant's board of directors (or persons performing the equivalent functions):

   (a) All significant deficiencies and material weaknesses in the design or operation of internal control over financial reporting which are reasonably likely to adversely affect the registrant's ability to record, process, summarize and report financial information; and

   (b) Any fraud, whether or not material, that involves management or other employees who have a significant role in the registrant's internal control over financial reporting.

Date: March 1, 2022

/s/ *Sheri Savage*
Sheri Savage
Chief Financial Officer

EXHIBIT 32.1

ULTRA CLEAN HOLDINGS, INC.
SARBANES-OXLEY ACT SECTION 906 CERTIFICATION

The certification set forth below is being submitted in connection with the annual report on Form 10-K of Ultra Clean Holdings, Inc. for the year ended December 31, 2021, (the "Report") for the purpose of complying with Rule 13a-14(b) or Rule 15d-14(b) of the Securities Exchange Act of 1934 (the "Exchange Act") and Section 1350 of Chapter 63 of Title 18 of the United States Code.

I, James P. Scholhamer, the Chief Executive Officer of Ultra Clean Holdings, Inc., certify that:

1. the Report fully complies with the requirements of Section 13(a) or 15(d) of the Exchange Act; and

2. the information contained in the Report fairly presents, in all material respects, the financial condition and results of operations of Ultra Clean Holdings, Inc.

Date: March 1, 2022

/s/ James P. Scholhamer
James P. Scholhamer
Chief Executive Officer

EXHIBIT 32.2

ULTRA CLEAN HOLDINGS, INC.
SARBANES-OXLEY ACT SECTION 906 CERTIFICATION

The certification set forth below is being submitted in connection with the annual report on Form 10-K of Ultra Clean Holdings, Inc. for the year ended December 31, 2021, (the "Report") for the purpose of complying with Rule 13a-14(b) or Rule 15d-14(b) of the Securities Exchange Act of 1934 (the "Exchange Act") and Section 1350 of Chapter 63 of Title 18 of the United States Code.

I, Sheri Savage, the Chief Financial Officer of Ultra Clean Holdings, Inc., certify that:

1. the Report fully complies with the requirements of Section 13(a) or 15(d) of the Exchange Act; and

2. the information contained in the Report fairly presents, in all material respects, the financial condition and results of operations of Ultra Clean Holdings, Inc.

Date: March 1, 2022

/s/ *Sheri Savage*
Sheri Savage
Chief Financial Officer