Applied Materials Launches Multibillion-Dollar R&D Platform in Silicon Valley to Accelerate Semiconductor Innovation

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- *Historic investment to establish the EPIC Center – the world's largest and most advanced facility for collaborative semiconductor process technology and manufacturing equipment R&D*
- *For the first time, chipmakers can have dedicated space within an equipment company's R&D fab, providing early access to next-generation processes and equipment to accelerate product roadmaps*
- *University researchers can validate new ideas on industrial-scale equipment and develop the talent the industry needs – both in the new EPIC Center and in Applied-managed university satellite labs*

SANTA CLARA, Calif., May 22, 2023 (GLOBE NEWSWIRE) -- Applied Materials, Inc. today announced a landmark investment to build the world's largest and most advanced facility for collaborative semiconductor process technology and manufacturing equipment research and development (R&D). The new Equipment and Process Innovation and Commercialization (EPIC) Center is planned as the heart of a high-velocity innovation platform designed to accelerate development and commercialization of the foundational technologies needed by the global semiconductor and computing industries.

To be located at an Applied campus in Silicon Valley, the multibillion-dollar facility is designed to provide a breadth and scale of capabilities that is unique in the industry, including more than 180,000 square feet – more than three American football fields – of state-of-the-art cleanroom for collaborative innovation with chipmakers, universities and ecosystem partners. Designed from the ground up to accelerate the pace of introducing new manufacturing innovations, the new EPIC Center is expected to reduce the time it takes the industry to bring a technology from concept to commercialization by several years, while simultaneously increasing the commercial success rate of new innovations and the return on R&D investments for the entire semiconductor ecosystem.

"While semiconductors are more critical to the global economy than ever before, the technology challenges our industry faces are becoming more complex," said Gary Dickerson, President and CEO of Applied Materials. "This investment presents a golden opportunity to re-engineer the way the global industry collaborates to deliver the foundational semiconductor process and manufacturing technologies needed to sustain rapid improvements in energy-efficient, high-performance computing."

Addressing Industry Challenges

Tremendous growth in the number of connected devices and the rise of artificial intelligence are driving increasing demand for chips and the opportunity for a $1 trillion semiconductor market. At the same time, chipmakers face significant challenges to sustain the pace of innovation required to meet this demand.

The "angstrom era" of chipmaking requires new foundational manufacturing technologies that are orders of magnitude more complex than those used today. This increased complexity drives higher R&D and manufacturing costs, while lengthening the time it takes to develop and commercialize new semiconductor technology through high-volume manufacturing. Further hurdles include a critical shortage of technical talent needed by the industry and the pressing need to reduce the carbon intensity of the electronics industry.

Accelerating Chipmaker Roadmaps

For decades, chipmakers have relied on rapid advances in foundational semiconductor technology to deliver continued improvements in chip performance, power, area, cost and time-to-market (PPACt). Billions of dollars are invested each year to drive new inflections in the way chipmakers create, shape, modify, analyze and connect materials and structures at the atomic scale. Once developed, these technologies must be proven to work reliably and cost-effectively in the industrial-scale equipment for high-volume manufacturing.

While these technology inflections continue to drive the industry forward, the sheer complexity of the engineering challenges requires a new approach to R&D. The traditional development model, starting with materials engineering equipment and process innovation, is a serial, compartmentalized process with no central hub for collaboration across the ecosystem. The industry needs a new model that breaks down traditional silos, builds denser networks of collaboration, and delivers tighter feedback loops that can increase the speed and lower the cost of innovation.

Applied's new EPIC Center is designed to be a premier platform for leading logic and memory chipmakers to collaborate with the equipment ecosystem. For the first time, chipmakers can have their own dedicated space within an equipment supplier facility, extending their in-house pilot lines and providing early access to next-generation technologies and tools – months or even years before equivalent capabilities can be installed at their facilities.

A number of leading semiconductor and computing companies, including AMD, IBM, Intel, Micron, Nvidia, Samsung, TSMC and Western Digital, have commented on today's announcement. The videos are available here.

Strengthening University Pipelines

The platform is also expected to be a catalyst for accelerating the commercialization of academic research and strengthening the pipeline of future semiconductor industry talent.

Universities are uniquely skilled at ideating new concepts, but they often lack access to state-of-the-art industrial labs and hardware which can impede their ability to turn ideas into commercial reality. Applied's new platform can provide university researchers access to the full range of industrial-scale capabilities to validate their ideas, increasing the success rate of innovations and reducing the time and cost of commercializing new technologies.

This would be achieved with a two-pronged approach. University researchers can perform research alongside industry professionals in the new EPIC Center, and Applied can collaborate with academic partners to build a network of industrial-quality satellite labs at university facilities. The new approach is designed to build upon Applied's existing relationships with top engineering schools, such as Arizona State University, where Applied has been conducting research in materials science and semiconductor technology alongside faculty and students.

"We're all-in as an asset to industry and to the nation as we seek to regain global pre-eminence in semiconductor manufacturing, research and development," said ASU President Michael Crow. "Applied Materials is providing extraordinary leadership to accelerate innovation and commercialization of foundational manufacturing technologies that will define the future of how chips are made. And as we continue to innovate in that process, ASU will bring research expertise and help create the future innovation and manufacturing talent pipeline that will be critical over the long term."

Video comments from leading universities, including Arizona State University, Massachusetts Institute of Technology, the State University of New York, University of California, Berkeley and the University of Texas at Austin, are available here.

A Historic Investment

To create the EPIC Center, Applied Materials expects to make gross, incremental capital investments of up to $4 billion over the next seven years. The new innovation center is expected to be completed by early 2026 and become the nexus of more than $25 billion in company R&D investments in the first 10 years of operations. The center is expected to employ up to 1,500 construction workers during the building period and create up to 2,000 new engineering jobs in Silicon Valley and potentially another 11,000 jobs in other industries*. EPIC is designed to be capable of engaging with a future U.S. National Semiconductor Technology Center. The scale of Applied's investment is contingent upon receiving support from the U.S. government through provisions of the CHIPS and Science Act.

Forward-Looking Statements

This press release contains forward-looking statements regarding our future plans and expectations to make investments in connection with the creation of the new EPIC Center, including those relating to the size and timing of our investments, the timing of the completion of the EPIC Center, the anticipated benefits to the semiconductor industry, the development and commercialization of new technologies, engagement with other technology research and development centers, and other statements that are not historical facts. These statements and their underlying assumptions are subject to risks and uncertainties and are not guarantees of future performance. Factors that could cause actual results to differ materially from those expressed or implied by such statements include, without limitation: failure to realize the anticipated benefits of our planned investments; construction delays, cost increases or changes in investment or construction plans due to business, economic, governmental or industry conditions; insufficient industry or governmental support; the demand for semiconductors; customers' technology and capacity requirements; the introduction of new and innovative technologies, and the timing of technology transitions; market acceptance of existing and newly developed products; the ability to obtain and protect intellectual property rights in technologies; our ability to ensure compliance with applicable environmental and other law, rules and regulations; and other risks and uncertainties described in our SEC filings, including our recent Forms 10-Q and 8-K. All forward-looking statements are based on management's current estimates, projections and assumptions, and we assume no obligation to update them.

About Applied Materials
Applied Materials, Inc. (Nasdaq: AMAT) is the leader in materials engineering solutions used to produce virtually every new chip and advanced display in the world. Our expertise in modifying materials at atomic levels and on an industrial scale enables customers to transform possibilities into reality. At Applied Materials, our innovations make possible a better future. Learn more at www.appliedmaterials.com.

*Source: Semiconductor Industry Association and Oxford Economics Report, May 2021

Contact:
Ricky Gradwohl (editorial/media) 408.235.4676
Michael Sullivan (financial community) 408.986.7977

A photo accompanying this announcement is available at https://www.globenewswire.com/NewsRoom/AttachmentNg/0bb6a944-515c-4c6a-bad2-f59038eac6be

These photos are also available at Newscom, www.newscom.com, and via AP PhotoExpress.

Rendering of the future Applied Materials Equipment and Process Innovation and Commercialization (EPIC) Center

Applied Materials is making a landmark investment to build the world's largest and most advanced facility for collaborative semiconductor process technology and manufacturing equipment R&D. The new Equipment and Process Innovation and Commercialization (EPIC) Center is planned as the heart of a high-velocity innovation platform designed to accelerate development and commercialization of the foundational technologies needed by the global semiconductor and computing industries.

Source: Applied Materials, Inc.