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Intel Editorial: Expansion of Intel's Foundry Partnerships is a Critical Piece of IDM 2.0

Intel's access to the industry's broadest selection of process technologies and advanced packaging capabilities provides unmatched flexibility.

SANTA CLARA, Calif.--(BUSINESS WIRE)-- *The following is an opinion editorial by Stuart Pann, a senior vice president in the Corporate Planning Group at Intel Corporation.*

This press release features multimedia. View the full release here:

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Stuart Pann is a senior vice president in the Corporate Planning Group at Intel Corporation. (Credit: Intel Corporation)

This week my colleague [Raja Koduri](#) hosted Architecture Day, where he and a group of Intel's architects and engineers unpacked details behind the new product architectures that will power our leadership roadmap, starting with Alder Lake later this year. The breadth of new architectures is indicative of the world we live in – a world where the demand for more compute performance is endless and customer workloads are larger, more complex and more diverse than ever.

Staying ahead of this demand will increasingly need a mix of architectures. Graphics processing units are a great example. While graphics is not new territory for Intel, we have reinvigorated our efforts to build a scalable microarchitecture to support a range of graphics processing applications. At Architecture Day, we featured two upcoming graphics products: Intel® Arc™, our new gaming discrete system-on-chip (SoC) based on the X^e HPG microarchitecture that can scale to enthusiast-class solutions, and Ponte

Vecchio, our X^e HPC microarchitecture for high performance computing and artificial intelligence workloads.

More: [Intel Architecture Day 2021](#) (Press Kit) | [Intel Advances Architecture for Data Center, HPC-AI and Client Computing](#) (Raja Koduri Editorial) | [Intel Unveils Biggest Architectural Shifts in a Generation for CPUs, GPUs and IPUs](#) (Architecture Day Fact Sheet)

Significant elements of these graphics products will be manufactured externally, using TSMC's N6 and N5 process technologies. This is the basis of a question I hear frequently in my role as leader of the newly formed Corporate Planning Group – where one of our jobs is to manage the relationships with our external foundry partners.

I'm asked: Why do we use foundries for products instead of our internal factory network and how do we make that decision?

Intel has been using external foundries for decades. In fact, Intel currently runs as much as 20 percent of its overall product volume at external foundries, and we are among the top customers of TSMC. Historically we have partnered with foundries to manufacture components such as Wi-Fi modules and chipsets or specific product lines such as Ethernet controllers. These products use mainstream process nodes to complement our internal leading-edge technologies.

As part of Intel's [IDM 2.0 strategy](#) that CEO Pat Gelsinger announced in March, we are evolving this integrated device manufacturer model to deepen and expand our partnerships with leading foundries. These X^e graphics products are part of the first phase of evolution, where we are tapping into another foundry's advanced nodes for the first time. The reason is simple: Just as our designers use the right architecture for the right workload, we also choose the node that best fits that architecture. At this point in time, these foundry nodes are the right choice for our discrete graphics products.

The next evolution is driven by our modular approach to architecture, which allows us to mix and match individual pieces of silicon – or tiles – on different process nodes and connect them through Intel's advanced packaging. As more and more semiconductor products transition from systems-on-a-chip to systems-on-a-package technology, Intel's leadership in advanced packaging will position us to take advantage of this trend. This is already taking shape with Ponte Vecchio, and we are embracing this trend wholeheartedly with upcoming high-volume products such as Meteor Lake for client computing. As we have disclosed, the Meteor Lake compute tile will be manufactured using our [leading-edge Intel 4 process technology](#), with some supporting tiles manufactured at TSMC.

Over the course of the past year, we have seen surging demand in the PC sector, and we expect this demand to remain strong for years to come. We have been clear about our plans to invest heavily in new factories to meet this long-term demand, but it takes years to build and equip new leading-edge fabs. A unique advantage of our IDM 2.0 model is it allows us to leverage every tool available to ensure near-term supply for our customers. This is where the combination of our modular approach, our internal factory network, and our deep foundry partnerships becomes a clear competitive advantage. We have access to the industry's broadest selection of process technologies, which, along with our advanced packaging capabilities, provides us unmatched flexibility to deliver leadership products and supply assurance for customers.

External foundries are strategic partners and a key component of our IDM 2.0 model. While the majority of our products will continue to be made internally, expect to see tiles from external foundries playing a bigger part in our modular products in the coming years – including core compute functionality on advanced nodes to serve emerging workloads in client, data center and other areas.

If the past year has taught us anything, it's that building a responsive and resilient supply chain is critical. Our foundry partners help us stay on course and deliver a predictable cadence of leadership products to customers in every segment we serve.

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