

## Q4 2020 Earnings Call

### Company Participants

- George Davis, Executive Vice President & Chief Financial Officer
- Omar Syed Ishrak, Chairman of the Board
- Pat Gelsinger, Incoming Chief Executive Officer
- Robert H. Swan, Chief Executive Officer
- Trey Campbell, Vice President & Director of Investor Relations

### Other Participants

- Ambrish Srivastava, Analyst
- CJ Muse, Analyst
- Harlan Sur, Analyst
- Joe Moore, Analyst
- John Pitzer, Analyst
- Matt Ramsay, Analyst
- Stacy Rasgon, Analyst
- Timothy Arcuri, Analyst
- Vivek Arya, Analyst

### Presentation

#### Operator

Ladies and gentlemen, thank you for standing by and welcome to the Fourth Quarter 2020 Intel Corporation Earnings Conference. At this time, all participant lines are in listen-only mode. (Operator Instructions) After the presentation, there will be a question-and-answer session. (Operator Instructions) Please be advised that today's conference maybe recorded.

I would now like to hand the conference over to your host today, Mr. Trey Campbell, Vice President and Director of Investor Relations. Please go ahead.

#### Trey Campbell {BIO 20385325 <GO>}

Thank you, operator and welcome, everyone to Intel's fourth quarter earnings conference call. By now, you should received a copy of our earnings release and the earnings presentation. If you've not received both documents, they're available on our investor website, [intc.com](http://intc.com). The earnings presentation is available in the webcast window for those joining us online.

I'm joined today by our Chairman of the Board, Omar Ishrak; our incoming CEO, Pat Gelsinger; our current CEO, Bob Swan; and our CFO, George Davis. In a moment, you'll hear brief remarks followed by Q&A.

Before we begin, let me remind everyone that today's discussion contains forward-looking statements based on the environment as we currently see it and as such does include risks and uncertainties.

Please refer to our press release for more information on the specific risk factors that could cause actual results to differ materially. A brief reminder that this quarter we have provided both GAAP and non-GAAP financial measures. Today, we will be speaking to the non-GAAP financial measures when describing our consolidated results. The earnings presentation and earnings release available on [intc.com](http://intc.com) include the full GAAP and non-GAAP reconciliations.

Given our CEO transition, I want to clarify two points ahead of remarks in Q&A. One, we will be providing Q1 '21 guidance on this call, but we'll provide full-year guidance for 2021 at a later date, no later than our next earnings call in April. Second, we'll be providing more commentary on our progress on 7-nanometer, with specifics on our manufacturing plans for our 2023 products to follow, after Pat joins us in mid-February.

With that, let me hand it over to Omar.

### **Omar Syed Ishrak** {BIO 3183909 <GO>}

Thank you, Trey and good afternoon, everyone. Thank you for joining us. As you've heard, Intel has been in the midst of a major transformation to strengthen our CPU franchise, while evolving into a multi-architecture XPU company. The business is well positioned to capitalize on key technology inflections and extend our reach into fast growing markets. Under Bob's leadership, Intel has made significant progress on this strategy. And once again delivered record results in the past year, which Bob and George will detail shortly.

But before that, I'd like to say a few words about the CEO transition we announced last week. This decision came after very careful consideration and planning by the Board and in partnership with Bob. Pat Gelsinger will rejoin Intel on February 15, as our new CEO and a member of our Board. Bob will remain in his role until then and he will work with Pat to ensure a seamless transition.

On behalf of the entire Intel team and Board of Directors, I'd like to thank Bob for his leadership and significant contributions through this period of transformation for Intel. The company faced challenging issues were in Bob took over and he has been a fantastic leader. Bob clarified Intel's growth strategy, reenergized its culture and made significant progress and improving execution. He leaves Intel in a strong strategic and financial position and we deeply appreciate his ongoing guidance during this transition.

Last week, Bob and I introduced Pat to Intel employees around the world, who gave him a very warm welcome. We believe this is the right time to make this change and we are

confident, Pat is the right person to lead Intel forward. In addition to deep technology expertise and unique insights in Intel's technology evolution, based on 30 years as a leader here, Pat brings a distinguished record of driving growth and performance and shareholder returns.

He lives by our values based cultural leadership approach and has a hyper focus and talent development and operational execution. In sum, the Board is confident that Pat together with the rest of the leadership team and our incredible dedicated 110,000 employees around the world will ensure strong execution of Intel's strategy, build on its record of product leadership and capitalize on the significant opportunities ahead to create long-term shareholder value.

Why does not step into the role for another few weeks? He has kindly agreed to join us today. So you will get to hear some of his initial observations with more to come after he officially takes over on February 15.

With that I'd like to turn it over to Pat for a few words.

### **Pat Gelsinger** {BIO 1740128 <GO>}

Thanks Omar, for the kind introduction. It's a pleasure to be here with you all today. I am thrilled and humbled to be coming home to my dream job as Intel's CEO. I was only 18 when I first joined Intel and I'm proud to say, I spent the following 30 years learning from such industry giants as Grove, Moore and Noyce.

My experience at Intel has shaped my entire career and I'm forever grateful for the opportunity to now lead this great company. I have tremendous regard for Intel's rich history of innovation and the world changing technologies invented here that now power the world's digital foundation. I can't wait to help lead this great technology innovator, during a critical time of change and disruption.

I know you're all very anxious to hear more from me on our long-term plans and I'll be sharing my detailed perspective after I assume my new role in mid-February. That said, I do want to provide my views specifically on 7-nanometer progress. I've had the opportunity to personally examine the progress on Intel's 7-nanometer technology over the last week. Based on initial reviews, I am pleased with the progress made on the health and recovery of the 7-nanometer program.

I am confident that the majority of our 2023 products will be manufactured internally. At the same time, given the breadth of our portfolio, it's likely that we will expand our use of external foundries for certain technologies and products. We will provide more details on this and our 2023 roadmap, once I fully assess the analysis that has been done and the best path forward.

Bob and George will walk you through the financials and provide guidance for the first quarter shortly. We are holding off and providing guidance for the full year, until I join. But we will do so in a timely fashion, no later than on our next earnings call in April. Looking

ahead, the world is becoming more digitally connected, expanding the market in front of us. Intel is the only semiconductor company in the world that has the depth of intelligent silicon, platform vision, design and manufacturing capabilities and scale that our customers need to fuel their next generation innovations.

There was enormous opportunity ahead for Intel. But to be able to seize these opportunities, we have to deliver the best products and stay ahead of our customer's needs. We need to become more agile in a very competitive market. We need to execute flawlessly and deliver on our commitments. We need to passionately innovate with boldness and speed.

Intel culture and values must be healthy and vibrant, assuring our ability to attract and retain the best engineering talent in the world. I look forward to working with the incredibly talented global Intel team and industry partners to continue delivering the best technologies for our customers around the world. I also look forward to engaging with you, our shareholders in the coming months to hear your perspectives and discuss our vision and strategy for Intel. We will position this company for sustained growth and leadership for our industry, our country and an increasingly digital world.

I also want to extend my deepest respect and appreciation to Bob for his leadership and significant contributions to Intel through this critical period. I'm just starting to dive into the business, but already I'm confident that the strong foundation and progress achieved under his leadership, put us on the right track to build on Intel's great history and to create value for our customers and shareholders in the years to come. Thanks again.

Bob, over to you.

### **Robert H. Swan** {BIO 1972621 <GO>}

Thanks, Pat and welcome back to Intel. It has been an honor to lead this incredible company and its talented team. It gives me great confidence in Intel's future, knowing that I'll be passing the baton to Pat, whose technology expertise, industry knowledge, execution track record and commitment to our company is indisputable. Over the last few years we made significant progress on our strategy to transform Intel into a multi-architecture XPU company. To move from silicon to solutions and to contemporize our IDM model.

I am proud of what we were able to achieve together as an Intel team in a relatively short period of time and echo Omar's words that Intel is in a strong strategic and financial position, as we make this transition. As demonstrated by the results we announced today, demand for Intel's innovative technologies remains very strong. And our investments to capitalize on future growth opportunities are paying off.

Our Q4 results significantly exceeded our expectations, capping off our fifth consecutive year of record revenue. We generated \$20 billion in revenue and a \$1.52 in EPS, exceeding our guidance by \$2.6 billion and \$0.42 respectively. For the full year, we

delivered \$77.9 billion in revenue, up 8% and \$5.30 in EPS, up 9%. The client data center, memory and Mobileye businesses, each set all-time revenue records.

In Q4, we continue to advance our three strategic priorities. Improving our execution to strengthen our core business, extending our reach to accelerate growth and redefine our position in the industry and continuing to thoughtfully deploy capital to create value for our shareholders.

Let me briefly discuss some of the highlights. Starting with improving our execution to strengthen our core business. Let me start with an update on process technology and our product roadmap. Over the last few years, we've been following the IDM model to ensure we can deliver a predictable cadence of leadership products, preserve our IDM advantage, continue to invest in process technology leadership and generate attractive returns on capital. This evolution includes a disaggregated design strategy, adoption of standard industry processes and common tools, flows and methods, and deeper engagement with the industry ecosystem.

In July, we highlighted a challenge with our 7-nanometer technology and started a process to improve it, while evaluating the best approach for our 2023 product lineup. Since that time, we have made tremendous progress on our 7-nanometer technology. And 7-nanometer was originally defined, the flow contained a particular sequence of steps that contributed to the defect issue we discussed in July. By re-architecting these steps, we've been able to resolve the defects.

As part of this work over the last six months, we also streamlined and simplified our 7-nanometer process architecture to better ensure we'll be able to deliver on our 2023 product roadmap. The in-line data we have been collecting and our pipeline of proven yield development projects, gives us confidence in our ability to deliver on our commitments going forward.

At the same time, as Pat mentioned, we will continue to leverage the relationships we've developed over the years with our external foundry partners and believe they can play a larger role in our product roadmap, given our disaggregated designs. Once Pat has had a chance to join to further assess our analysis and drive the final manufacturing decision for our 2023 CPU products. Therefore we will communicate that decision soon after he takes over, but not today.

Turning to products, we've qualified several new products in the fourth quarter and we have an incredibly exciting lineup of CPUs for '21 and '22. Just a couple of weeks ago at CES, we introduced more than 50 processors, resulting in more than 500 new designs for laptops and desktops, coming to market in 2021. We are also seeing tremendous market response for PCs, based on our new 11th Gen Intel Core Tiger Lake processors. Our PC customers now have more than 150 Tiger Lake based systems in the market, well ahead of expectations.

We believe, we gained market share as PC CPU units grew an impressive 33% in the quarter. In a market where our competitors are seeing supply challenges, this is a

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powerful example of the incredible value and scale of our factory network, as we continue to deliver greater performance and cost efficiencies for our customers.

Moving to data center, we are now shipping our first 10-nanometer based Xeon Scalable CPU Ice Lake and we'll be ramping volume through the first quarter. Customers are going to see significant value in Ice Lake across cloud, network and edge workloads with excellent performance improvement and innovations, such as PCIe Express Gen 4, next generation Intel Optane Persistent Memory and security enhancements such as SGX.

As we look ahead, we are excited about the capabilities we are bringing to customers with Alder Lake for mobile and desktop PCs and Sapphire Rapids for the data center. These products take advantage of our enhanced SuperFin Process Technology and numerous architectural improvements and both are broadly sampling to customers. We will qualify Alder Lake desktop and notebook for production and begin our volume ramp in the second half of '21 and we expect production qualification of Sapphire Rapids at the end of 2021.

In the expanded market opportunity in front of us, CPUs are critical, but multiple architectures or XPU's will be required to help customers optimize for specific workloads. We had a big XPU lead in the fourth quarter, as we entered the discrete graphics market with Intel Iris Xe Max graphics. Intel's first Xe based discrete GPU. We are now shipping discrete graphics into thin and light notebooks from Acer, Asus and Dell and we introduced our first discrete GPU for the data center, which is already delivering great cloud gaming experiences for customers such as Tencent.

We also announced a gold release of oneAPI our cross-industry open standards-based unified programming model that delivers a common developer experience across architectures. Second, we've made strong progress extending our reach to accelerate our growth. Over the past several years, we have been making investments that have positioned us to lead key technology inflections such as AI, 5G network transformation and the intelligent autonomous edge. We infuse AI capabilities into everything we make from the cloud to PCs and we see tremendous growth prospects as we build our position in datacenter training to complement the strength of our Intel Xeon for entrance.

We made a significant step in AI this quarter, when Amazon announced EC2 instances that will leverage up to eight of our Habana Gaudi AI training accelerators and deliver up to 40% better price performance than current GPU based EC2 instances for machine learning workloads. We've also invested to drive networking workload convergence on Intel Silicon. In 2020, we expanded our footprint into the radio access network, delivering Xeon, SoCs, FPGAs and custom solutions for 5G base station designs and reaching our goal of 40% share, two years ahead of our original target.

Today, we have the leading network silicon provider, winning in wireless enterprise and cloud networks and delivering \$6 billion in revenue this year, up approximately 20% versus 2019. Finally, we have enviable assets to lead the explosive growth of intelligent and autonomous edge computing. Our IOTG and Mobileye businesses have a combined

annual revenue of \$4 billion. Mobileye delivered a record fourth quarter and had an explosive start to 2021 with a number of exciting CES announcements.

Third, we maintained our discipline in thoughtfully allocating our shareholder's capital. Since 2015, we have grown revenue by more than \$22 billion and more than doubled EPS. We've driven spending from 36% of revenue to 25% of revenue, while investing in manufacturing capacity expansion, adding more than \$1 billion of R&D targeted to higher growth initiatives and focusing our product portfolio.

As a result, we anticipate approximately \$12 billion in proceeds from our NAND and McAfee exits over time. At the same time, we've been delivering substantial capital returns to shareholders, including \$19.8 billion in 2020 alone through dividends and share buybacks. The latter of which included a \$10 billion accelerated share repurchase announced in August. Building on this today, we announced that we are increasing our annual dividend by \$0.07 or 5% from \$1.32 to \$1.39 per share.

Before I pass it to George for more details on our fourth quarter results, I want to reiterate that I couldn't be more proud of the team at Intel and I cherish the time I've spent here. I look forward to watching Pat and the team's continued progress, as they build on Intel's purpose, to deliver breakthrough technology that enriches the lives of everyone on the planet. I also thank our investors and analysts on the line today for their continued support of Intel and for a valued engagements over the years.

### **George Davis** {BIO 3925391 <GO>}

Thanks, Bob and good afternoon, everyone. Q4 marked a much stronger than expected finish to a record year. Both Mobileye and our PC-centric segment achieved record quarters. Q4 revenue was \$20 billion exceeding our guidance by \$2.6 billion. The revenue beat was broad based, led by stronger-than-expected notebook and cloud demand, along with contributions from desktop and enterprise and government. Datacenter related demand also led to stronger revenues in NAND.

Gross margin for the quarter was 58.4% exceeding guide by 3 points due to flow through on higher revenue and the benefit of Ice Lake server achieving production qualification prior to year end. Q4 EPS was \$1.52, \$0.42 above our guide due to strong operational performance and further boosted by gains from our ICAP portfolio. Excluding a one-time tax adjustment about 2/3s of our EPS beat was operational and 1/3 was below the line.

For full year 2020, we achieved record revenue of \$77.9 billion, \$4.4 billion higher than our January guide, this reflects a one-year acceleration relative to our 2019 Investor Day target. EPS was \$5.30, up \$0.43 year-over-year and \$0.30 higher than our January guide. We generated \$21.1 billion of free cash flow up 25% year-on-year and returned 94% of free cash flow to shareholders. In total, we have repurchased approximately 17.6 billion shares as part of our planned \$20 billion share repurchases announced in October 2019. We intend to complete the remaining \$2.4 billion balance in Q1 '21.

Moving briefly the segment performance. Our data center group generated record revenue in 2020, up 11% year-over-year. In Q4, DCG delivered revenue of \$6.1 billion, down 16% year-over-year driven by enterprise and government weakness and cloud digestion, albeit lower than expected. As a reminder, Q4 '19 was a tough compare with an all-time record for revenue was strength across all segments.

DCG operating margin in Q4 was down \$1.4 billion year-on-year on lower revenue and increased investment. Our other data centric businesses were up 1% year-over-year in 2020. In Q4 these businesses were down 5% year-over-year, driven largely by COVID related demand impacts, partially offset by Mobileye growth.

IOTG revenue was down 16% year-over-year due to COVID effects on demand. We expect recovery in IOTG in 2021 and saw sequential growth of \$100 million in the quarter on stabilizing industrial and video segments. Mobileye revenue was up 39% year-over-year in the quarter and operating margin was \$110 million, both records as IQ, SoC demand continues to be strong. NSG revenue was \$1.2 billion, down 1% year-on-year on lower ASPs, partially offset by higher volume growth. Operating margin was \$76 million.

PSG revenue was down 16% year-over-year, due mostly to 5G ASIC transitions at key accounts in the communication segment. CCG delivered a fifth straight year of record revenue up 8% year-over-year. For the quarter, revenue was up 9% year-over-year, driven by record notebook unit volume. ASPs were down 11% due to increased volume and consumer entry in education segments. Adjacency revenue was down 31% driven by modem ramp down and the divestiture of our home gateway business. Operating income was \$4.5 billion, up \$420 million year-over-year on higher volume, partially offset by the ramp of 10-nanometer products.

Moving to our outlook. As Bob already said, we believe it is important to give Pat time to assume his new role and dig into the business before announcing our full-year 2021 guidance and longer-term plans. However, I will provide our Q1 outlook and then for the year, discuss high level headwinds and tailwinds we expect.

As a reminder, our outlook for 2021 excludes the NAND business. We expect Q1 revenue of \$17.5 billion, down 12% year-over-year or down 6% excluding NAND. We see continuing strong demand for notebook PCs in Q1, up significantly year-over-year and expect desktop volumes to be down year-over-year. We anticipate further cloud digestion and continued COVID demand impacts on IOTG. The Q1 revenue estimate also includes approximately \$500 million in corporate revenue that is one-time in nature and relates to a prepaid revenue arrangement.

As we look at the remainder of the year, we see solid TAM growth in our core markets in 2021. We expect PC demand to be more first-half weighted than normal seasonality and expect data centric demand to be more concentrated in the second half, as cloud digestion eases and COVID impacted markets such as enterprise, datacenter and IoT improve. We have strong product road maps that have anticipated a more competitive market and the continued mix shift to entry consumer PCs in our revenue plan this year. Finally, we will see lower modem revenue this year from our exit of that business.



Gross margin in Q1 is expected to be approximately 58%, down year-over-year by approximately 4 points on mix related ASPs from lower Xeon Xe volume and higher small core PC units, partially offset by lower margin impact from the divested businesses and some improvements from our DCG adjacencies. Q1 operating margin is expected to be approximately 30%. We are forecasting EPS of approximately \$1.10 per share and a tax rate of 14.5%.

With that, let me turn it back over to Trey and get to your questions.

**Trey Campbell** {BIO 20385325 <GO>}

All right. Thank you, George. Moving on now to the Q&A. As is our normal practice, we would ask each participant to ask just one question. Operator, please go ahead and introduce our first caller.

## Questions And Answers

### Operator

Our first question comes from the line of CJ Muse with Evercore.

### Q - CJ Muse

Yes, good evening and thank you for taking the question. Bob, it's been a pleasure working with you. In fact, congrats and best of luck. I guess first question is around -- in fact, clearly the final decision has been made yet, but it certainly sounds pretty clear that, you're pursuing a dual path strategy of manufacturing at the leading edge both internally and externally. So how should we think about the impact to CapEx, where you need to make investments with your foundry partner to secure capacity and importing certain products to very different foundry design rules. What impact will that have on FX, OpEx and is that -- is what is driving higher OpEx intensity in Q1? Thank you.

### A - Robert H. Swan

 {BIO 1972621 <GO>}

Yes. Thanks, CJ. Maybe I'll start and George you can finish up. First, yes, we've been through an exhaust of effort over the course of the last six months and as we highlighted, we've made tremendous progress on our 7-nanometer process technology and that gives us a lot of comfort that the number one priority that we set in the middle of the year, which was a predictable cadence of leadership products that we would be able to deliver our 20 -- 2023 roadmap using i7 or our next-gen technology.

So the progress, the team has made is, given us the confidence that will continue to leverage the IDM advantage and invest in technology development leadership in the future. At the same time, we also realize that with our disaggregate -- disaggregated designs that we launched a few years back that we have enhanced flexibility to see, if when and what technologies or tiles will make inside, which will be the majority of our '23 roadmap.

But it gives us the flexibility to look at things outside and the trade-offs that we make in doing that, are one, performance of product in a predictable manner; two, economics; and three, ensuring that we have the capacity and the control of the supply chain, so that we can -- our customers can count on our deliveries. So over the course in time, preserving the IDM advantage, while being more-and-more flexible on our architectures and our designs.

#### **A - George Davis** {BIO 3925391 <GO>}

Yes and CJ in terms of spending, I would say. Yes, we're increasing spending on 7-nanometer inside the company in preparation for the next generation of tools. I wouldn't tie it explicitly in any way to the trade-off between manufacturing internally or externally. That's really going to be decided as Pat looks at the product roadmap. Most of our spending increase in the year compared to what we thought is tied to more spending on AI and on our Xeon roadmap, which pretty much was a re-direction of the savings that we got from the divestitures.

#### **A - Pat Gelsinger** {BIO 1740128 <GO>}

And if I might, CJ. This is Pat, pleasure to join all of the investors on this call today. I just want to affirm as I said in my formal statements that I was very pleased to see the great progress of 7-nanometers and the TD team has really done a great job over the last six months. That gives me the confidence, as I said in my formal comments that the majority will be internally. But we will be increasing the use of our foundry capabilities as well and we'll be more specific on this after I plan to dig deeper with the team shortly after joining the company in the middle of next month. But overall, I think we're on a very good path now.

#### **Q - CJ Muse**

Thanks so much.

#### **Operator**

Our next question comes from John Pitzer with Credit Suisse.

#### **Q - John Pitzer** {BIO 1541792 <GO>}

Yes. Good afternoon, guys. Thanks for letting me ask question. I'll echo CJ and thanking, Bob for all his help and welcoming Pat to the team. I guess my question Bob, probably just around gross margins. Clearly, you significantly upside in the December quarter. I would have thought that going into March, given the divestiture of NAND and that being gross margin accretive that maybe you would get some better leverage on gross margin. So maybe you can address that? And I guess more importantly from the March quarter, Bob or George, can you talk about how we should think about the puts and takes to the cost sides on gross margins as 10-nanometer begins to ramp?

#### **A - George Davis** {BIO 3925391 <GO>}

Yes. Hey, John, I'll take it. This is George. In Q1, what we're really seeing is again a typical seasonality. So when you look at the fact that we're in a digestion phase and we're actually in the third quarter of it, that has a significant impact on mix that's affecting our ASPs. You're also seeing tremendous demand in PCs, well above our expectations. Obviously, contributing to the beat in Q4, continuing into Q1 and actually we think that continuingly strongly into the first half and that's largely small core type devices, so we have an ASP effect there as well.

We are seeing some higher 7-nanometer costs impacting the -- our outlook for gross margin and we are getting the benefit from NAND as you talk about, and -- but we're also seeing more savings in 10-nanometer costs as we're making more progress there, than we've -- than actually we were even expecting, it's accelerating. So we're pleased with that. As you think about the full year, I think trying to take a compare off of Q1, when we are impacted on ASPs both from DCG and from CCG, it makes for a difficult full year extrapolation.

We're going to come back to you with a full-year outlook and we can go more into it. But in terms of headwinds and tailwinds that we see as we go into the year. Obviously, we're going to have higher 10-nanometer volume, which is going to impact gross margins overall. The client mix is going to continue to be heavily weighted, particularly in the first half on small core. I think on data center, we think they'll continue to be competitive pressures on ASPs. But I think DCG is really going to be more of a cost story with 10-nanometer coming in.

Although, we're much further along on the maturity of 10-nanometer, so it won't be as impactful as we saw with CCG last year. And then of course, for DCG, you can expect the inclusion of Optane, it will have a little bit of impact on margin as well. So the tailwinds still look very strong, obviously the ramp down on modem, our divestiture of the gateway business, the sale of NAND and improvements in 10-nanometer, all tailwinds that should help us in gross margin, but we will go into more detail on that when we guide the full year.

#### **A - Robert H. Swan** {BIO 1972621 <GO>}

Yes. And I would, I'd put maybe John, just I think history here, is a reasonably good indicator of the commentary that George provided for '21. And if you go back a year, we said gross margins would be 59% for 2020 and we ended up with 57.5%. So down a point to half and if you look at the fundamental drivers of that point and a half versus what we thought at the beginning of the year.

First, we generated \$4 billion more revenue than we thought, so volume was much higher. And then when you look at the makeup of that volume, it was -- in my mind, it was all good things that foreshadow important things for '21 and beyond. First, the demand for our 10-nanometer products was much -- was higher greater than we expected and that was a very positive in terms of income, but slight degradation in gross margin.

Second, the PC demand that we experienced during the course of the year, which relative to where we were at the beginning of the year was off the charts, including what we

believe were share gains in the fourth quarter, came predominantly with consumer entry in education. So those two segments tend to be lower margin, but real strong demand and that was the gap that we didn't feel when we are capacity constrained last year. So I think in terms of the mix of more 10-nanometer, much more PC demand at the lower ends, those were things that drove down gross margin percent, but a lot more income than we expected a year ago.

And those things as George mentioned, going into '21 are going to be -- you're going to have a much better mix because of the exit of modem and NAND, number one. Number two, 10-nanometer product cost, as George mentioned, is going to get much better during the course of the year. Number three, 14-nanometer is going to be more fully depreciated equipment, those three things are very positive as we go into the year. At the same time, George flagged two issues, one of those mix dynamics of lower PC TAM, we think is going to be relatively strong, but it's -- we do believe it's going to be at the lower end.

Education will be a big part of that demand that has lower margin. And we renewed our commitment to 7-nanometer process technology and that in fact will have a degradation. So in so many ways, we generated a lot more income and revenue in 2020 as the adoption of our better -- of our 10-nanometer products in lower end in consumer were very positive impacts for earnings and those trends you'll see as we go in the first quarter and throughout 2021.

**Q - John Pitzer** {BIO 1541792 <GO>}

That's a great explanation. Thanks, Bob.

**Operator**

Our next question comes from Joe Moore with Morgan Stanley.

**Q - Joe Moore** {BIO 17644779 <GO>}

Great, thank you. I wonder, if you could drill down on the progress on 7-nanometer. If I look back at the comments from July, you had talked about having your first Client Product in first half of '23. Is that still the right -- I don't want to be too granular about timeframe, but it seems like early '23 versus late '23 wouldn't make a big difference. Are you still kind of on the track that you talked about in July for the first 7-nanometer output?

**A - Robert H. Swan** {BIO 1972621 <GO>}

Yes, I think at the time we said, in effect, given the process challenges, we are dealing with the product roadmap, we expected to shift a couple of quarters into '23. And as normal client will likely go first and server will go after that. So the expectation is in our focus and improving 7, so that we can hit that predictable cadence of leadership products in '23. We have dramatically improved our confidence in our ability to hit that product roadmap schedule that we talked about at the time.

**Q - Joe Moore** {BIO 17644779 <GO>}

That's very helpful, thanks very much and congratulations and thanks for all your help last few years.

**A - Robert H. Swan** {BIO 1972621 <GO>}

Thank you.

**Operator**

Our next question comes from Vivek Arya with Bank of America.

**Q - Vivek Arya** {BIO 6781604 <GO>}

Thanks for taking my question. And then congratulations and best wishes to Bob and Pat. Well, my question is, if you're saying Intel will get to 7-nanometers by 2023, the competitive foundry products will still be one order ahead. TSMC is planning to ramp their 3-nanometer node next year, right? And will probably have a much bigger ramp by 2023. So I'm curious, what is Intel need to do to kind of match or leapfrog foundry capability, because in the two or three years that you are kind of get to your 7-nanometer, competition several with ARM-based capabilities is still making progress. I'm just trying to think what is kind of a conceptual state of competitive play when we get to 2023? Thank you.

**A - Robert H. Swan** {BIO 1972621 <GO>}

Yes, there are two things. And we've talked about this a bit over the last couple of years. But first, our belief on delivering leadership products over time is going to be dependent on a multitude of factors, process technology is very important, packaging technologies becomes increasingly important in our mind, a multitude of architectures, CPU to XPU or including graphics and AI capabilities, memory, security and last but not least, software. And you'll remember that we talked about those as the six pillars of technology required to deliver product leadership or process is very important, but it's not the only thing. So that's kind of the strategy we've been on for the last couple of years.

But secondly, we're going to continue to invest in process technology. So yes, some of the progress we made on 7 over the last couple of quarters is important for the next generation of process technology. So as we leverage our six pillars of technology to deliver leadership product, we will also continue to invest in next generation process technology beyond 7-nanometer.

**A - Pat Gelsinger** {BIO 1740128 <GO>}

Let me just add a couple of points to that. This is Pat again. As we said, we believe the majority will be on our 7-nanometers. But we will be increasing the use of foundry capabilities in that time frame as well. Overall, it is about building, as Bob said, a competitive product that has leadership in the marketplace and that's what our intent is to do and as we brought in the use of our technologies across packaging software, internal

and external. We are confident that we can deliver a leadership product family in the marketplace across all of our major product categories.

Additionally, I was also very pleased to see some of the long-term innovations coming out of TD, right as we work to close any gaps with external foundries, as well as leap ahead. And clearly we're not interested in just closing gaps, we're interested in resuming that position of the unquestioned leader and process technology and that's our commitment. Also with the IDM model, we believe we have the right combination of being able to deliver supply to meet our customer's requirements by leveraging internal and external capabilities, which are our competition doesn't have.

And between all of these capabilities, we believe we are striking the right balance of internal and external to deliver an unquestioned leadership product in the marketplace that meets our customer's requirements for the long term.

**Q - Vivek Arya** {BIO 6781604 <GO>}

Thank you, Bob and Pat.

## Operator

Our next question comes from Ambrish Srivastava with BMO.

**Q - Ambrish Srivastava** {BIO 4109276 <GO>}

Hi, thank you very much. Bob, thanks, I really enjoyed my interactions with you. I had a question for you, Pat. And I don't believe everything I read in the press. But -- and even if you did look at the opportunity earlier, I just wanted to get a feel from you. What really appealed to you, when you looked at this opportunity versus very successful strength at VMware? And especially in light of the challenges Intel has had, which we could argue, Bob inherited from before. So can you just help us understand kind of what are the challenges and the opportunities that you saw, which got you to this role again and welcome back by the way.

**A - Pat Gelsinger** {BIO 1740128 <GO>}

Well, thank you very much. And a few general comments would be. One is, this is a great company and one that I have just great history with as I said 30 years as part of this company, grow more noise. These are the people that I grew up, right at their feet of learning. And to me, it really is a privilege and I'm honored to come back to this company as I said in my dream job. The second, this is a national asset. This company needs to be healthy for the technology industry for technology in America.

And to me it's an opportunity to help and to unquestionably put Intel in the United States in the technology leadership position, so I'm excited by that opportunity to do that. It was also very exciting to see the unity of the Board and calling me to the role. And with that working closely with the Board and their enthusiasm to bring me into the company, as well as the alignment on the look forward strategy that we're laying out. And those

together and well I say the timing wasn't necessarily, I was enjoying my time at VMware, but the opportunity to come back now, be part of this great company.

And Intel has gone through cycles before. And clearly, as I was here, economic cycles, we've had periods where we were ahead and periods where we were behind others. Personally I was very involved in -- the period, where we were very right diminished in the market place in late to the multi-core. And in that period of time in 2005 through 2009, we turned around the company and unquestionably established the leadership position after a period where many were questioning the ability of the company to be successful.

Yet again, great companies are able to come back from periods of difficulty in challenge and they come back stronger, better and more capable than ever. And that I believe is the opportunity at Intel and I'm confident that this company has its best days in front of it and I'm looking forward to the opportunity to be part of that.

**Q - Ambrish Srivastava** {BIO 4109276 <GO>}

Thanks, Pat.

## Operator

Our next question comes from Stacy Rasgon with Bernstein Research.

**Q - Stacy Rasgon** {BIO 16423886 <GO>}

Hi guys. Thanks for taking my question. And Pat, welcome to Intel, glad to see here. I'm going to address the elephant in the room, a little bit. And Pat, I understand your initial perspective on 7-nanometer looking at it for a short period of time. But at the same time, what I've got to say is, the company was telling us for a year that 7-nanometers is on track. That it looks great and then all of the suddenly it wasn't. To the point of considering potentially massive strategic shifts.

So now, I mean, I guess, how can we as investors have confidence that after a brief look that you've given at this point of things really are on track. What are you seeing that gives you that confidence and how should we think about the current process? And I guess that you -- how they fit into the risks, potentially the future nodes, since it sounds like you're sticking around on internal manufacturing, as just given what we've seen at both 7-nanometer, but also 10 and 14 in the last several notes where we had problems, like how do we get that confidence?

**A - Pat Gelsinger** {BIO 1740128 <GO>}

Well, I would also say that Bob and the team have been working on this for the last six months diligently. So even though my investigation was really just a few days, I'm looking at data that's been thoroughly analyzed trends over the last 6 months that clearly is bringing them to a point of greater confidence. For -- I looked at that data, I came to the same decisions that they were. At the same time, here we're pausing, right to say that everything is resolved to give me a little bit more time with the team to understand the road map and to dig deeper into those decisions.

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And like we said, we'll be giving more clarity on that in the near future after I have time to analyze that more carefully. Also the team has been making adjustments of leadership. Anna has been doing a great job, as we moved her into that role, you'll be seeing we're making adjustments in the leadership of our product development teams as well, where talent is going to come into the company, are excited about the road map that we're on. You might have seen, we just announced a new fellow coming back, one of my absolute favorite (Technical Difficulty) here and Glenn Hinton, coming back to the company and you'll be seeing other announcements of key leaders coming back in.

So I think the team has been doing a great job, getting us at this point. I expect with the leadership, the roadmap and a few more weeks of analysis, we'll be making very solid decisions that allow us to put the company on a path that is merited to the great foundation that Intel had in the past.

**Q - Stacy Rasgon** {BIO 16423886 <GO>}

Got it. Good luck.

**A - Pat Gelsinger** {BIO 1740128 <GO>}

Thank you.

## Operator

Our next question comes from Harlan Sur with JPMorgan.

**Q - Harlan Sur** {BIO 6539622 <GO>}

Good afternoon. I want to welcome back Pat of the team and Bob, thank you for all the contributions and support over the past few years. I'm underlying the strong performance of the Data Center Group last year was the continued penetration of Xeon, ASICs and networking connectivity solutions into your large 5G service provider customers. As they continue to virtualize the core and radio access parts of their networks. I think this helped to drive the 50% growth in data center adjacencies last year, your networking compute segment was 6 billion and up 20% as you mentioned.

So just given the continued build-out of 5G this year, does the team continue to see double-digit type of growth profile for the networking compute segment this year? And compute networking has been a segment where Intel, I think still owns a 100% share in the x86 server CPU market. Are you guys starting to see competition stepping it up in this fast-growing segment?

**A - Robert H. Swan** {BIO 1972621 <GO>}

Thanks for the question. You gave most of my answer your inclusion. I mean first, as we've been saying for the last couple of years that, we view 5G and network transformation as a significant opportunity for us to expand the role we play as more-and-more compute moves from the data center to the cloud, to the network and those dump pipes become

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smarter-and-smarter pipe. So this has been a pretty large thrust for us for last several years.

We've made tremendous progress in migrating a customer-oriented environment to general purpose compute and that has been a big source of growth from a \$1 billion business, probably five or six years ago to \$5 billion last year. That came primarily by leveraging the core GPU in the network environment. But a couple of years ago, to your question, we expanded the role that we thought we could play, as more-and-more compute happened at the network. And that included moving into the radio access space with more -- with general purpose compute, but also custom architectures including FPGAs and ASICs. And that allowed us to play a much bigger role in our customer's success in a key emerging technology that we've been focused on for a while.

So I think that, maybe the one other pointed that I would make that, we've gone -- we targeted about 20% share in that radio access space by 2022 and we hit that 40% share in 2020. So we're well ahead of where we expected, the role we play at 5G and the network is much bigger. We've developed partnerships along the way in this space, including with VMware. So I can only imagine those partnerships and complementary capabilities will allow us to play a bigger-and-bigger role, as more-and-more compute moves to the network into the edge.

#### **A - Pat Gelsinger** {BIO 1740128 <GO>}

And if I might pile on to this one, as Bob said. Bob and I had struck a partnership, when I was in my VMware role, when I've been driving the 5G strategy at VMware. So this is one of them actually quite intimate with. And the opportunity of 5G as it becomes a horizontal versus a vertically-controlled industry, is absolutely enormous. But it's even more important than that, because 5G is going to represent a platform that is redefining edge computing. It will open up smart cities, smart factories that will displace Wi-Fi. This is a powerful technology will also be deployed in private 5G environments as well.

So not only is Intel establishing a beachhead in a very important market that was never a major source of revenue forward in the past. But it is a redefining all aspects of distributed computing in the future. So this leadership position that has established today is one that will be harvesting for the next decade and 5G isn't just faster LTE. It is a new network with increased security, connectivity, bandwidth, better than wired capabilities and truly will open up markets as we've never seen before. This one is exciting and the leadership position that's already been established here will be harvested for many, many years to come.

#### **Q - Harlan Sur** {BIO 6539622 <GO>}

Thank you for the insights.

#### **Operator**

Our next question comes from Matt Ramsay with Cowen.

**Q - Matt Ramsay** {BIO 17978411 <GO>}

Yes, thank you very much. Good afternoon and thanks Bob for everything, Pat welcome home. I guess my question is a bigger picture one. And Pat, you had mentioned a little bit about this in one of your previous answers. And I guess the question is to Omar yourself and to Bob. No secret that Intel success is hugely critical to US competitiveness in the long-term on several pillars of technology. I wonder and Pat your decision to come back, Omar your decision and the Board's decision to take -- make the CEO change and go in that direction. How much that influence that and what the interactions with governments, US government, Israeli government, et cetera. What those conversations have been like in support of Intel? Thanks.

**A - Omar Syed Ishrak** {BIO 3183909 <GO>}

Well, let me take that one. First of all the Board has a succession planning process, which we are looking at and we felt that this was the right time to make the move in the partnership with Bob. And there was no real government influence or anything like that in this decision. So this was part of our regular process and we're just delighted to have Pat join us at this time and we're confident, he can take this company to the next level as he has been saying. And thanks to Bob for what he has done. So there was no other motive other than the regular succession planning process that the Board does have.

**A - Robert H. Swan** {BIO 1972621 <GO>}

And then on the specific question about the dynamics in discussion with kind of the US government on -- or maybe just our foundry capabilities. I would just -- we've been talking about this for a couple of years and I think the implications of -- a couple of years ago, increased trade tariffs, now more increase in trade restrictions. At the time we saw that is a challenge, because China is a large market for us, but also is a big opportunity. And the big opportunity were on two fronts. In the event of an increase in the East first, West world. We saw an opportunity for us to play a bigger role in 5G. So we talked about that and I think as a result of the incremental investments we've made, the team has made tremendous progress on our 5G space.

At the same time, we also talked about addressing a growing need in an East first West world, where supply -- whether a dual supply chains and increased anxiety about having all your technology dependencies more in the East. So for us what that meant was engaging both with the US government and with commercial players who just for increasingly anxious about their exposures. And what we've heard from the US government is, one we need advanced -- access to advanced microelectronics technology and manufacturing here in the US.

We need greater industrial manufacturing base here in the US and we need a safe and secure supply chain increasingly here in the US. And with those three things, and this is both US government and commercial customers, we're the only company that can really check all three boxes. So along the way, as you know, Matt. We told the US government that we would be in a position too, for the good of the industry, frankly, for the good of the country, for the good of the Intel, we would leverage our competencies, our capabilities to provide foundry services to the US government.

And then been working very closely, because foundry services require scale. How do we make sure that we have the technologies that can be both USG needs and commercial players needs and that's a dialog that has been back and forth for a while. And we think we've played a role both with ourselves in the semiconductor industry association and trying to shape some of the incentives coming out of Washington that in effect do a more effective job in leveling the playing field to invest in foundry services here in the US.

**Q - Matt Ramsay** {BIO 17978411 <GO>}

Thank you very much, Bob. That was helpful.

## Operator

Our next question comes from Timothy Arcuri with UBS.

**Q - Timothy Arcuri** {BIO 3824613 <GO>}

Hi, thanks. I guess, I had a broader question on just captive versus foundry as well. And Bob, you had an interview, I think maybe it was a month ago, maybe it was six weeks ago, where you talked about licensing or the possibility to basically license a process from a foundry, rather than just strictly out sourcing to a foundry. And you said that, yes, that is actually possible that you could do that. I mean that would be quite a tectonic shift and I guess, since Pat is also on the phone, I just wanted to ask you, is this something that's remotely on the table as you sort of think about this? Thanks.

**A - Robert H. Swan** {BIO 1972621 <GO>}

Well, I'll be a little more generic. I think what I said is that, our focus is on how do you deliver a predictable cadence of leadership products, preserve IDM advantages and invest in technology development. And along the way, as a company we much more open in engaging with the ecosystem to make sure we understand the inherent technologies that are out there and embrace technologies to the extent there, they might be better than what we have or not as critical and the determination of product performance differentiation.

So that say, what we've characterized is just engaging with the ecosystem in a much more holistic way. And broadly speaking, that may mean, sharing technologies that we have that they could use or leveraging technologies that others have developed that we can use as well. So that's -- I just think it goes back to how do we take this wonderful business model called IDM, where we co-optimize design and manufacturing, we make all the money and we control the supply chain. How do we evolve that very powerful business model in industry in an ecosystem that's made dramatic advancements over the last 10 years, where we think we can be more open minded in engage and leveraging announce.

**A - Pat Gelsinger** {BIO 1740128 <GO>}

And I would just add to that. This will certainly be a topic that we'll discuss as I go forward with the company. Also that is a clearly visibility to work more closely with the equipment suppliers, right, the care tool suppliers other technology sources in the industry were committed to the IDM model, were committed to leadership products, but also

innovation that fundamentally has us leading the industry in a consistent basis. And sometimes that may happen outside of the company, sometimes it will be inside of the company, but we're committed to leading innovation and delivering the best products for our customers in every category that we participate in.

**A - Trey Campbell** {BIO 20385325 <GO>}

Thanks. (Multiple Speakers) Yeah. Thank you. And Pat, I just going to give maybe a few minutes here at the end for you to frame out your priorities as we leave the call and just give you a few seconds to do that.

**A - Pat Gelsinger** {BIO 1740128 <GO>}

Great, thank you, Trey. And thanks again to Bob and really is incredible to come back home and have my dream job. And thank you, Bob, for being the vehicle to deliver that up to me. Four areas that I touched on briefly in my formal comments that, you'll see me focus on as I come into the company. One is great product. Right, where we simply will be the leader in every category that we participate, you'll see me dive into details. We'll build out the partnerships with our customers, but we're going to deliver leadership products and have a development machine that consistently does that.

Then execution. Obviously, we have to regain the confidence of our customers that our supply chain is the best that our roadmap is the best that they can rely on us for their products and their strategies for the future. Innovation, we're going to continue to be a source of fountain, a continual delivery vehicle for the greatest innovations of the industry. We'll be doing that with the IDM model. 7-nanometers beyond, but continuing to find radical areas to innovate, because the world is looking for more digital technology as more-and-more of every aspect of humanity is coming online and coming to the digital foundation that we uniquely build and deliver.

And finally culture. I was trained at the feet of growth and we will have the Grove and Maniac execution transparent data driven culture and rebuilding that as part of this company. And as we look across these areas, as I said, I'm convinced. The best days for this company are in front of us and this is a priority for Intel, a priority for the technology industry and our nation. And it is a sovereign duty, responsibility and opportunity for me to be taking on that role. Thank you all for joining us today.

**A - Trey Campbell** {BIO 20385325 <GO>}

Thanks, Pat and thank you all for joining us. Operator, could you please go ahead and wrap up the call?

**Operator**

Ladies and gentlemen, this concludes today's conference call. Thank you for participating. You may now disconnect.

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