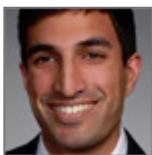


Intel Corp INTC |

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Intel Enters 2016 with Altera in the Fold; Poised for a Return to Growth



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Analyst Note

[Intel Enters 2016 with Altera in the Fold; Poised for a Return to Growth; Shares Fairly Valued](#)
by Abhinav Davuluri, 01/14/2016

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Analyst Note 01/14/2016

Intel reported fourth-quarter results which were in line with our expectations and resulted in roughly flat revenue for 2015. Notably, the client computing group was not the laggard, as the firm's leading edge 14-nanometer chips made up more than 50% of units sold with the higher-priced Skylake processors leading the way. In contrast, the data center group capped off a relatively disappointing year in which it failed to grow at management's prescribed long-term rate of 15%. We are still very positive on the firm's prospects in the data center space going forward, as Intel will benefit from cloud customer adoption of server chips which feature programmable logic devices from newly acquired Altera. After incorporating Altera's business into our model, we project 2016 top-line growth of about 7.5%. Shares were lower by about 5% in after-hours trading, as management emanated a

cautious outlook for near-term economic growth, particularly in China, resulting in a low first-quarter guidance. We are maintaining our \$31 per share fair value estimate and wide moat rating for Intel, and view shares fairly valued at current levels.

Fourth-quarter sales were \$14.9 billion, up 1% year over year, as 5% growth in data center group revenue was offset by a 1% decline in client computing group sales. Although PC processor units were down 14%, we were pleased to see a rich product mix with average selling prices up 17% as high-end core i7 processors and gaming chips set all-time records. In the server space, weaker cloud spending led to roughly flat ASPs after increasing by at least 5% in each quarter prior in 2015. Gross margins were up 130 basis points as a result of the aforementioned richer product mix in PCs.

Investment Thesis 04/09/2015

Intel is the leader in the integrated design and manufacturing of microprocessors found in personal computers. With the rise in interconnectivity of devices ranging from PCs to smartphones, Intel strives to provide the most powerful and energy-

Morningstar's

Analyst

Price 01-21-2016
29.75 USD

Consider Buy
21.7 USD

Stewardship Rating
Standard

Bulls Say

- Intel is the largest firm has sustained by investing heavily
- The firm holds a rich microprocessor moat
- The data center group proliferation of microprocessors is the main driver of

Bears Say

- PC industry growth 1990s. As a result limited.
- Intel must succeed in processor market. market share loss
- The inability for Intel a reasonable level be replaced by microprocessors

Competitors IN

Name

Intel Corp

Taiwan Semiconductor Manufacturing Co Ltd
ADR

Texas Instruments Inc

Broadcom Corp

efficient silicon solution to any product "smart and connected." The data centers used to facilitate the information stored, analyzed, and accessed by various front-end devices are predominantly run with Intel server chips.

[Avago Technologies Ltd](#)

[NXP Semiconductors NV](#)

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Intel differentiates itself first and foremost via the continued execution of Moore's law, which predicts transistor density on integrated circuits will double about every two years, meaning subsequent chips have substantial power, cost, and size improvements. This scaling advantage is perpetuated through a higher than peer average R&D and capital expenditure budget that allows Intel to control the entire design and manufacturing process in an industry where the majority of competition focuses on only one phase.

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As cloud computing continues to garner significant investment, Intel's data center group will be an indirect beneficiary. Mobile devices have become the preferred device to perform computing tasks and access data via cloud infrastructures that require considerable server buildouts. This development has provided strong tailwinds for Intel's lucrative server processor business. We believe the Altera acquisition will help Intel maintain its recent growth trajectory in the space, as customers increasingly seek out customized server solutions that utilize programmable logic devices.

In recent years, Intel has seen a shifting competitive landscape resulting from the proliferation of mobile devices, at the expense of the mature PC market, with ARM replacing AMD as chief rival. Consequently, Intel attempted to shift its characteristic approach of offering high-performance processors in lieu of variants similar to ARM's low-power consuming designs that inhabit most smartphones and tablets. Intel's latest Atom processors haven't resulted in many impressive design wins and thus, the firm has begun to emulate ARM's strategy of licensing its IP to third-parties, which we think is a sounder mobile strategy.

Economic Moat 04/09/2015

We believe Intel's wide moat emanates from its superior cost advantages realized in the design and manufacturing of its cutting-edge microprocessors. This in-house capability supports a streamlined supply chain, shorter time to market, and the ability to scale promising products more rapidly. Semiconductor manufacturing is inherently capital-intensive thus requires methodical planning and execution to keep the cost per chip at a reasonable level. Intel accomplishes this through investments in the latest process equipment technologies. However, in order for the economics of the business to be pragmatic, there needs to be strong demand via differentiated products that can be sold at high margins, which Intel achieves with its massive research and development budget that averaged \$11.4 billion annually from 2013 to 2015.

Following along the pathway prescribed by Moore's law, coined by one of Intel's chief founders Gordon Moore, the number of transistors per unit area doubles approximately every two years. As process technologies develop, the cost per unit

area increases while the unit area per transistor decreases. Thus, by netting these two trends, Intel is able to decrease the cost per transistor with each successive technology node. This fundamental realization is at the core of Intel's one- to two-year lead over the rest of the chip industry. We believe Intel's moat is encapsulated in its "tick-tock" strategy, in which the firm advances its technology node every two years (the tick), while it launches a new architecture for its microprocessors during the years in between (the tock). As a secondary moat source, we view the firm's engineering know-how related to advanced processor design and process technologies as an intangible asset not easily duplicated by peers.

Server processors are manufactured with the same technology and many identical process steps as chips designated for PCs. Therefore, we believe that as the product mix offered by Intel shifts from mostly PC chips to predominantly server chips, there will be minimal requirement to overhaul any portion of wafer fabrication equipment. Generally, server processors favor performance over power efficiency, which we believe is Intel's forte and justifies its strong presence in the market. However, different classes of data centers have separate needs, and the potential for ARM-based server chips making a push into microservers is a plausible scenario. We see the lessons learned by Intel in mobile carrying over across other domains, as its Atom chips for microservers are more energy efficient than comparable Xeon variants.

While previous mobile processor efforts have failed to make a meaningful impact, we believe Intel has appropriately pivoted towards a more reasonable mobile strategy. In addition to continuing to develop new Atom processors used in smartphones such as the Asus Zen, the firm has created partnerships with Chinese chipmakers Rockchip and Spreadtrum to emulate ARM's business model of licensing architecture for third-parties to utilize. In this manner, there is less direct investment from Intel as it mostly focuses on generating the IP used by others. We view this approach as shrewd, since it allows Intel to share the risk of its mobile endeavors.

In addition, Intel has been building its wireless connectivity portfolio with multiple acquisitions to give it in-house Wi-Fi, Bluetooth, GPS, and near field communication technologies. The logic behind this strategy is to combine these components on an LTE modem chipset to provide an additional way for Intel to break into a tier-one smartphone, such as Apple's iPhone. These investments have the potential to make an impact not only in mobile, but also in adjacent products ranging from tablets to the Internet of Things. Although these developments don't move the needle for us just yet, we believe Intel is making a step in the right direction to establishing its presence in the mobile space.

Furthermore, the x86 ecosystem (in which Intel's core products coexist), is representative in the majority of PC and server chips. Network effects have played a big role in its dominance, as proprietary computer software has been written specifically for the x86 architecture, leading to significant switching costs to shift architectures. The growth in the PC market allowed Intel to invest heavily in R&D

to fuel continued progress in the x86 architecture. However, with the PC market stagnating and ARM architecture exhibiting a commanding lead in mobile devices, x86 has continued to flourish in server processors, as x86-based server revenue accounted for 82% of the total server market in 2014, according to Gartner. ARM has announced plans to enter the server market by way of microservers, a class of server tailored for energy efficiency, which results in a smaller footprint and lower total cost of ownership relative to traditional servers. Intel's Atom processors are incumbent in today's microservers, and we believe the x86 ecosystem coupled with the newer versions of the Atom developed with 14-nanometer technology will thwart offerings by ARM.

Valuation 04/09/2015

Our fair value estimate is \$31 per share and implies a forward price/earnings ratio of 14. As the PC market continues to decline, we see server processors supplanting sales in PC processors, ultimately leading to overall revenue growth in the mid-single-digits in the near-term. For 2016, we forecast top-line growth of 7.5%, taking into account the Altera acquisition, stronger server chip sales to cloud customers, and milder PC declines. The PC market experienced a temporary revival in 2014 with a 6% revenue increase stemming from an enterprise refresh before declining by 8% in 2015. In the near-term, we see Intel's PC-derived revenue declining in the low-single-digits. However, the proliferation of cloud computing and big data trends will provide tailwinds for the data center group, which we see growing at a compound annual growth rate of 12% through 2020. By then, we believe the PC and data center groups will converge in percentage of total revenue, with both accounting for about 40% each. Intel's lead in process technology benefits from sizable R&D expenses (21% of revenue on average) and we believe this rate must continue to sustain its advantage. Gross margins in 2015, at almost 63%, benefited from a richer product mix in PCs with Skylake processors leading the way, as well as higher average selling prices in the data center group. Going forward, we believe lower unit sales for PC chips will be partially offset by increasing unit sales of server chips, which as a segment have gross margins in excess of 70%. As Intel shifts its focus toward server chips, utilization of its fabrication plants will become more efficient, which will alleviate margin depression from PC-related headwinds. Operating margins were relatively high in 2014 (28%) mainly attributed to strong PC and server chip sales, but we see margins normalizing to 25% in the long run. Intel's dominant manufacturing operations require massive capital outlays for expensive equipment, fabrication plant construction, and the maintenance of a clean room environment. Our estimates utilize historical patterns and the expected progression of Moore's law to attain an average capital expenditure of \$10 billion in the near term. Approximately 70% of this outlay is for maintaining existing capacity, with the rest split between process development and wafer size transition from 300 millimeters to 450 in order to have more chips on a sole substrate to mitigate cost challenges with 10-nanometer and beyond.

Risk 04/09/2015

The cyclical industry in which Intel operates will cause its profitability to fluctuate regardless of how successful it is in tailoring its processors to new markets. Our uncertainty rating is medium and reflects the underlying risk faced by Intel regarding the proliferation of mobile devices at the expense of personal computers, the expanding role of server processors in its product mix, and the advancement of technology nodes to 10-nanometer, 7-nanometer, and so on. In the PC space, any misstep by Intel could lead to AMD capturing market share. While it is more likely that ARM-based processors could begin to steal server market share from Intel, it is also theoretically possible ARM processing power catches up to Intel core processors. Any prolonged delay in process technology by Intel would allow other semiconductor manufacturers to quell Intel's lead and offer processors at the same node as Intel or even surpass it. Recent comments from Taiwan Semiconductor and Samsung seem to reflect this possibility as a reality, with the two foundries expecting to reach the 10-nanometer node by the end of 2016, and the latter announcing its intentions to push the node to 2017.

Management 01/15/2016

We view Intel's stewardship of shareholder capital as standard. Brian Krzanich took over as CEO in May 2013 following the retirement of Paul Otellini. Krzanich was previously COO and has been with the firm since 1982. Before becoming COO in January 2012, he held leadership positions in Intel's manufacturing organization. Stacy Smith became CFO in 2007. Smith joined Intel in 1988 and has held various positions at the company, including finance, information technology, and sales and marketing roles. Former CFO Andy Bryant remains at Intel and is now chairman of the board. We consider the firm to have a deep management bench.

Management has made the right moves to allow Intel to maintain its dominant position in computer processors in recent years, but the success of the firm's recent forays into new markets is still up for debate. Intel has been making a concerted effort to break into smartphone and tablet processors, which has traditionally been the stronghold of ARM-based processors, with its Atom chips, and even paid \$1.4 billion to acquire Infineon's wireless connectivity chip business in 2011 to support the endeavor. There are signs Intel is starting to make some progress on that front, albeit in a limited fashion. In addition, Intel acquired antivirus and security software maker McAfee for \$6.7 billion (net of cash) in 2011, with the vision of adding security features to its chips and hardware, which when integrated with software will provide more effective security solutions. Although strategically sound, we think it remains to be seen whether Intel can successfully execute its vision for McAfee. In 2015, Intel acquired programmable logic device maker Altera for \$16.7 billion, mainly to serve large data center customers looking for customized server processors with PLDs. We view the rationale for this deal more favorably, as it is predominantly catered to the data center group that has bolstered Intel's revenue growth in recent years amid tepid demand for PCs.

Overview

Profile:

Intel is the world's largest chipmaker. It develops and manufactures microprocessors and platform solutions for the global personal computer, mobile computing, and data center markets. Intel pioneered the x86 architecture for microprocessors.

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