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Bandwidth Boom Makes Chips More Attractive

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Corporate profits are higher than expected and that means a whole new wave of tech spending is on the way.

The next leg of the chip cycle is underway, sparked by a bandwidth boom that began a year ago as the world emerged from the recession, but new users, implementations and clear-cut productivity gains are now causing this to accelerate. So strong is the need for servers, network switches, fast cellular base stations and optical grids that chip usage just from infrastructure alone will drive the chip industry the next two or three years. This, on top of all the new user devices. The latest industry figures point to 58% year-over-year growth in chip sales, growth not seen since the 1990s boom that lasted the better part of that decade. Expectations might be meager but the boom is on. The V going ex-atmospheric.

The inventory replenishment phase of the upturn is still not over. So lean is the supply chain that it was badly underinvested during the financial scare, driven by end demand broadening way beyond expectation. Economic indicators point to low inventories and rising new orders, especially in the U.S., elevating the dollar and holding import costs in check. Business profits beating by wide margins signal banner corporate productivity from the use of new technology, but more is on the way. The economists still can't figure out when the upturn began but anyone looking at Intel (INTC - news - people), Hewlett-Packard (HPQ - news -people), Apple (AAPL - news - people), SanDisk (SNDK - news - people), NetLogic (NETL - news - people) or Volterra can tell you orders inflected over a year ago.

Apple just announced the sale of one million iPads in just under a month, signaling a startling number of new Internet connections from just one electronics-laden new device, augmenting smartphones, netbooks, notebooks and other mobile devices also selling like hot cakes. Countries like Israel and South Korea that initially limited iPad use will clear the way for the sale of this revolutionary new form factor, while companies and other enterprise customers vie with consumers to download apps to push productivity to new heights. Chip and capital equipment makers up and down the food chain speak of rising orders and requests from customers to expedite delivery. To show just how easy it is to fall behind the times, the spellchecker on the iMac on which these columns are written doesn't recognize iPad.

Foundry giant Taiwan Semiconductor is booked solid, raising prices and having to up capital spending to keep up with the tidal wave of new chip demand, especially at lead-edge process nodes. The installed base of chip-making equipment isn't robust enough to meet the need for low power-consuming, battery-life-extending chips that connect users to a faster paced and more robust Internet. Many of the chips can be produced with older equipment in legacy fabs,

but the digital processing, connectivity and memory variants require smaller geometries than the production base is currently capable of. Because capital equipment makers severely downsized until about a year ago, it will take another several years for the manufacturing base to enlarge enough to outstrip demand.

As the line widths from which chips are constructed shrink to enable faster processing and lower power consumption, demand for voltage regulators disproportionately escalates. While infrastructure server processors now routinely have four or eight cores, with more on the way, each requiring its own voltage regulator, Intel's Atom microprocessor is shifting to a dual-core version in another month, upping voltage regulator demand even in low-end netbooks and other mobile devices. Graphics processors in desktops and notebooks are also moving in this direction, augmenting an already enviable storage, data communication and computing customer list. There's no stopping the trend to the small, low-cost versions that Volterra specializes in, where the biggest issue is finding sufficient foundry capacity to satisfy customer demand that will continue to escalate with each shift to smaller production geometries. This is a secular keeper.

NetLogic is another smaller chipmaker with a long runway, but like Volterra it has enjoyed a strong ascent the past year, so it was ripe for a pullback after the recent earnings report. Already seeing sales growing about half as quickly as the average chipmaker from computing and communications customers, two new demand drivers lie in the wings. The first is the move by wireless networks to the 4G standard that will further boost connection speeds, enabling even more rich media on mobile devices. With Apple's next iPhone apparently capable of video creation, just imagine where this is headed as 4G enters service in 2011. Qualcomm (QCOM - news - people) is supposed to have its first transmitting chips available late this year. The downside of faster download and upload speeds is security, already a growing issue at the 3G level, providing secular impetus for NetLogic's real-time packet classification chip family, just one of their offerings but truly unique.

The second demand bump for NetLogic products comes from implementation of IPv6 that materially expands available Internet addresses, required as nearly everything that connects to the Internet is given a unique address, just as occurred with phone numbers and zip codes. Intended for implementation several years ago, here's another instance of technology change that was put on the back burner during the financial crisis but which is now roaring back to life, just as upgrades of the fiber optical communications grid and enterprise data centers. As these deployments layer in the next several years, the potential for intrusion by bad guys is enhanced by an order of magnitude. Attested by growth rates at ZTE and Huawei, Asia is deploying high speed networks at a rapid clip, the region of the world most of the intruders operate. Long runway, indeed.

Other major players in the bandwidth game are Altera (ALTR - news - people), Xilinx (XLNX - news - people), Broadcom (BRCM - news - people) and Marvell. Our competitive favorites are Altera and Broadcom, but especially the former, which just displayed dramatic margin gains in the first quarter, with the hint that more are on the way. Altera's latest offerings facilitate replacement by all the major communications infrastructure of more costly chips from other vendors, including their own in-house designs they have made by outside foundries. Run by the visionary John Daane, Altera should really come into its own the next year or two as its average selling prices rise, perhaps rivaling chip industry leader Linear Technology (LLTC - news - people) in the mid-70% range for gross margin compared with the 71% just reported.

Altera's able to do this because of their special architecture that accommodates high speed memory and switching that Xilinx's approach finds cumbersome, as well as a quicker move to next generation manufacturing process. Broadcom's as innovative a chipmaker as on the planet but its more price competitive marketplace limits margins and its upsides will come from raw units. Wall Street usually pays up for margins, especially if they're seen as sustainable. We take Altera at its word that this is a four to five year build. That qualifies as sustainable but the stock now sells for barely 10 times what they'll earn this year. In past chip cycles, Altera has commanded P/Es three to four times that. The same upside potential holds for analog chipmaker Linear Technology that also upsided margins this past quarter even as revenues notably exceeded. It, too, sells for about 15 times our estimate for calendar 2010, even though the company's profitability is way ahead of nearly any other company listed on any exchange. These examples of valuation mismatches show the opportunity that lies potentially ahead. We're staying long through the summer and think the crowd will catch up.

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