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Smoot-Hawley Redux?

Airgo manages to capture an entirely new source of bandwidth that can increase the Shannon capacity of a particular spectrum space by a factor of between seven and ten

Inside:

In his insightful new book, *The World Is Flat,* Tom Friedman of the *New York Times,* though generally disdainful of anything conservative, somehow brings himself to cite an exemplary Heritage Foundation study of U.S. companies with facilities in China. These firms are not an unhealthy set of "Benedict Arnolds," as they were quaintly dubbed by Senator John Kerry during the last presidential campaign. They are the heart of the U.S. economy and the spearhead of global economic growth.

As Friedman explains, these manufacturing outsourcers together generate 21 percent of U.S. GDP, 56 percent of U.S. exports, and 60 percent of U.S. manufacturing employment. But even these figures understate the significance of these companies, because GDP is full of fluff—Berkshire Hathaway-type dross such as Coke and reinsurance flimflam and government dependents such as the *Washington Post* and AIG—while the leading investors in China are our technology leaders, such as **Qualcomm** (QCOM), **IBM** (IBM), and **Applied Materials** (AMAT).

I know that on the market I have recently been slipping and sliding all over the track, but I have held fast to one proposition: China is vital to U.S. technology. The U.S. economic relationship with China expresses the most fruitful synergy in the entire industrial world. Any systematic attack on trade with China would prove as devastating to U.S. companies and thus to U.S. prosperity and power as the Smoot-Hawley tariff was to the U.S. economy at the time of the Great Depression.

The greatest current danger to the U.S. position in the world, therefore, is not the surge of oil prices or the terrorist jihad or the alleged "imbalances" in trade and investment. The direst peril is the current concerted bipartisan attack on the U.S. relationship with China. Compounded of misinterpreted national security threats and delusional trade gap fears, the bipartisan consensus strangely imagines that China is somehow exploiting us. China is surely a powerful country with a mind of its own and a lot of leftover Communist generals with a Taiwan fixation. If the U.S. is suffering from national security overreach, however, the answer is to improve our economy and our armaments, not to disrupt our most valuable economic relationship.

Nonetheless, with the administration and its congressional minions chiming in with Senators Hillary Clinton and Charles Schumer, and

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with a chorus of Davosian corporate gulls led by Warren Buffet and even sometimes Bill Gates, the American establishment has adopted a near unanimous belief that the dollar is way too strong vis-à-vis the Chinese currency. In response, both Congress and the administration urge a 27.5 percent tariff against Chinese goods designed to force a major revaluation of the Chinese yuan.

Nothing that Al Qaeda could do to America is as destructive to U.S. interests as this attack on the heart of our economy. Of course, many foreign politicians seethe with envy at the supposed "imbalances" that give the U.S. nearly half of global market cap and some 30 percent of global GDP. Naturally they want to bring us down. But why on earth do Americans join them? How on earth can the U.S. benefit from compounding the sharply higher prices it now pays for energy by paying sharply higher prices as well for Chinese manufactures and technology?

The greatest current danger to the U.S. position in the world is the current concerted bipartisan attack on the U.S. relationship with China

When John Snow and George Bush agree with Hillary Clinton and Charles Shumer on anything, even such a woebegone whim as a weak dollar as a remedy for supposed excesses of foreign investment in America, you can be sure things are not going well. After all, the Clintons and their agents such as Rubin and Summers, and their billionaire boffin Buffet, never urged a drastically weaker dollar when they held the power to achieve it. But the administration remains full of economists who believe that anyone who fails to accept the idea that the U.S. under Bush may be felicitously described as "Squanderville" is a supply-sider practicing voodoo.

FTC witch hunt

Exacerbating the damage of this macro-trade policy, the administration is pursuing almost equally perverse micro-trade policies. It is moving to ban the U.S. semiconductor capital equipment industry from selling state-of-the-art 90-nanometer gear to China on the grounds of national security. And it is conducting a Federal Trade Commission witch hunt against the dynamic random access memory (DRAM) industry (**Micron** [MU] of the U.S. included), which is somehow deemed to be charging too much (gouging), or too little (dumping), or just right (colluding), or perhaps all at the same time, in one of the nuttiest notions of criminality since the Salem witch trials. The DRAM witch hunt fails to notice that this is perhaps the world's most ferociously competitive industry, reducing its price per bit by some 50 percent per year.

The DRAM follies merely make the U.S. government look silly. But the national security effort is serious. It is based on the assumption that technology is something owned by the U.S. and stolen by foreigners or leaked to them rather than created in tandem on both sides of the Pacific. Since Asia commands roughly ten times more engineering talent than the U.S. does and since China alone now graduates more English-speaking engineers every year than the U.S.—and since the U.S. neither adequately trains Americans in math and science nor now permits the needed levels of immigration of foreign talent—leading-edge technology skills are no longer anywhere near a U.S. monopoly. Because China comprises roughly half the incremental market for semiconductor wafer fabrication equipment, moreover, the campaign to deny to China state-of-the-art microchips will reliably drive one of our most valuable and coveted industries off shore. So much for national security.

Seeing these policies make their way through the political process, the markets have responded with an exuberantly rational crash of technology stocks. Should these devastating policies hold, they will heavily punish the U.S. technology sector and jeopardize our continued world leadership in the field, already suffering from our pathetic inability to deploy real broadband.

These policies are based on the silly socialist view, masked as a "free market" in currencies, that trade should be equilibrated at national borders through gyrations of the value of money. But in a global economy with capital moving at the speed of light down fiber-optic lines rather than across perilous seas on clipper ships, nothing is less natural than a trade balance. It can only be achieved by constant destructive manipulation of currencies, which are finally determined after all by governmentally run and appointed central bankers.

Enemies of the dollar

A fundamental mistake of the trade doomsters is to fear foreign holdings of the U.S. dollar as though they were intrinsically different from and more dangerous than U.S. holdings. The overwhelming majority of dollars, however, are held by Americans, and what they think and do is far more significant than what foreigners do. Who cares if foreigners are buying or selling treasuries? If the administration, Congress and the Federal Reserve follow destructive policies, Americans will sell dollars a lot faster than Chinese or Indians will. And

Americans have far more dollars to sell. Indeed, Americans such as George Soros and Warren Buffet tend to have less allegiance to the dollar than the average Russian, Chinese, or even Iraqi. (Remember Saddam in his hole, clutching his stash of greenbacks.)

Every day I see hysterical rants from the "Daily Reckoning" against the dollar and all its works. Every Saturday in *Barrons* appears another paranoid rumination on possible foreign sales of dollars. Nearly every issue of the *New York Times* seems to obsess on the balance of trade and on the "obvious overvaluation" of the dollar. The chief enemies of the dollar seem to be American journalists, economists, and bureaucrats, including both Secretary Snow and others in the administration, who imagine that the value of the dollar has something to do with trade and apparently still believe that the trade gap has to be repaid in full by sending gold to foreigners.

But this is a global economy, not a set of national economies trading with each other and settling their balance of payments in the capital markets. In the worldwide webs of glass and light, capital moves fastest and trade follows.

Although our senators and secretaries say China is "manipulating" its currency, just the opposite is true. Since 1994, when Zhu Rongji fixed the yuan to the dollar, China has outsourced its monetary policy to Alan Greenspan and the Federal Reserve. The resulting integrated economic fabricstretching across the Pacific was a key to China's survival during the Asian meltdown of 1997-98 and continues to partially mitigate our Fed's errors. Creating a sort of common Asian-American market, the dollar-yuan peg has reduced volatility with our third largest (and most important) trading partner and greatly enhanced the ties between our two nations, thus increasing the long-term chances for peace. Although China may soon relax its peg, widening the band within which the yuan trades and thus potentially avoiding some of America's inflation, calls for China to "revalue or else" are dangerously misguided.

When the dollar sinks against gold and other currencies, everything denominated in dollars—including stocks, commodities, capital equipment, and foreign labor—becomes more expensive. That in itself constitutes inflation. It doesn't matter what happens to the dollar CPI or GDP deflators. With the dollar down about 40 percent, there has been no real global appreciation of the Dow or S&P. Undermining U.S. manufacturers is the need to pay between 30 and 40 percent more for capital equipment, fuel, materials, and overseas foundry services. Contrary to the Keynesian Snow job from the Treasury, the weak dollar does not aid U.S. producers except in an extremely short and elusive run.

Particularly damaged are U.S. technology companies. The declining dollar has already upended the market-share list in semiconductors, with Japanese and European companies leaping ahead of the U.S. group (except **Intel** [INTC]) for the first time since the last big dollar shift in the mid 1980s. If the dollar stays weak, these effects can endure, though at the moment they are chiefly artifacts of the currency shift.

Impinj is the global leader in shaping the new industry RFID standard and implementing it in silicon

The only interests that benefit from this inflation are farmers, currently crippled by farm subsidies that push them out of competitive markets into government preferred goods (ethanol, sugar) and manufacturers without a real comparative advantage (big steel). Thus the inflation favors the uncompetitive parts of the U.S. economy against the competitive parts. If it continues, while the Fed pores over Phillips curves and irrelevant CPI numbers, the damage can be grave.

Nonetheless, I hope and expect that the administration will eventually feel uncomfortable amid this off-key choir of friendly dolts and devious political opponents. Coming to its senses, it will soon return to its previous tax-cutting resolve on domestic policy. It should make its tax cuts permanent even if it cannot bring itself to make them flat, and even if from time to time it implies a need for higher taxes to pay for the spurious transitional costs of giving social security an economic basis.

U.S. crown jewels

Assuming that the destructive policies will not be sustained, or will be sufficiently muted, U.S. technology stocks have become a raving buy. I have just returned from a book tour, during which I visited some of the most exciting companies I have ever encountered. Among them is **Impinj**, which is well in the lead in radio frequency identification (RFID). For this ubiquitous application, this Carver Mead company has contrived a tiny, low-power mixed-signal chip that in its way is more advanced than a dual-processor four-gigahertz Pentium operating on 80 watts of power. Operating at between four and eight microwatts (millionths of a watt), the Impinj device runs entirely on incident radiation, which it modulates with its own encrypted message as it reflects the signal back to the reader. It also contains a tiny digital processor, several kilobytes of floating gate memory, and an analog power con-

TELECOSM TECHNOLOGIES

Advanced Micro Devices	(AMD)
Agilent	(A)
Altera	(ALTR)
Analog Devices	(ADI)
Broadcom	(BRCM)
Broadwing	(BWNG)
Cepheid	(CPHD)
Corning	(GLW)
Equinix	(EQIX)
Essex	(KEYW)
EZchip	(LNOP)
Flextronics	(FLEX)
Intel	(INTC)
JDS Uniphase	(JDSU)
Microvision	(MVIS)
National Semiconductor	(NSM)
NetLogic	(NETL)
Power-One	(PWER)
Qualcomm	(QCOM)
Semiconductor Manufacturing International	(SMI)
SK Telecom	(SKM)
Sprint	(FON)
Synaptics	(SYNA)
Taiwan Semiconductor	(TSM)
Terayon	(TERN)
Texas Instruments	(TXN)
Wind River Systems	(WIND)
Xilinx	(XLNX)
Zoran	(ZRAN)

Note: The Telecosm Technologies list featured in the Gilder Technology Report is not a model portfolio. It is a list of technologies that lead in their respective application. Companies appear on this list based on technical leadership, without consideration of current share price or investment timing. The presence of a company on the list is not a recommendation to buy shares at the current price. George Gilder and Gilder Technology Report staff may hold positions in some or all of the stocks listed.

Advanced Micro Devices (AMD)

PARADIGM PLAY:INTERNET COMPATIBLE PROCESSORS

MAY 2: 14.32; 52-WEEK RANGE: 10.76 – 24.95; MARKET CAP: 5.64B

NOR will be no more, at least for AMD, as it gives up on its battle with Intel over flash memory. Spansion, the flash joint venture 60% controlled by AMD, has filed a registration statement with the intent to go public. Flash was the reason AMD swung to an operating loss in March, pushing down overall revenue 3% to $1.2b. By contrast, sales of microprocessors, where AMD remains a thorn in the side to Intel, rose 3% sequentially to $750m, driven by record server and mobile processor sales. How will AMD act when it loses its memory? Hard to say. Both AMD and Fujitsu distribute Spansion products, and numerous changes in how cost of sales and operating expenses are allocated make post divorce values complex. AMD estimated $92m in operating income from microprocessors in 1Q. Annualize that, and you get an operating EPS of $0.92, yielding a PE of 15.6 (before nonoperating items) at the current share price of $14.32. Perhaps more important to investors than this financial guesstimate are AMD's ability both to complete Fab 36 within time and budget and to compete against Intel as a niche player in microprocessors for PCs. Good news, in addition to AMD's server and mobile advances, was the report that conversion to 90 nm has progressed ahead of schedule with yields higher than planned.

Altera (ALTR)

PARADIGM PLAY: SOFTENING HARDWARE,HARDENING SOFTWARE

MAY 2: 20.62; 52-WEEK RANGE: 17.50 – 25.50; MARKET CAP: 7.68B

In the battle for the gold in the programmable logic market, Altera appears to be gaining on its larger rival Xilinx (see below). As described by Nick Tredennick (*GTR*, September 2004), Altera is pursuing a high-volume general-purpose path, while Xilinx is tending to add more custom features to its chips, thus proliferating parts and diffusing talent, energy, and manufacturing costs across more products. Customization runs counter to the paradigm, which says software is hardening and hardware is softening: Programmable logic softens hardware by rendering it reprogrammable in real time, while its robust design tools automate, simplify, and thus "harden" the programming of its chips, enabling them to supplant application specific integrated circuits (ASICs), which are custom designed for their applications.

Driving Altera's 10% sequential revenue growth in the March quarter was the 16% surge in sales of the newest products, including the high-end Stratix II and low-end Cyclone II families of field programmable gate arrays (FPGAs). Introduced last year as the first high-density, 90 nm FPGA, Stratix II includes Altera's adaptive logic modules; sales of Stratix II more than doubled sequentially in March. Earlier this year, the 90 nm Cyclone II family began shipping, offering 3x higher densities, more features, and lower costs than the original Cyclones, sending them further down the ASIC market into higher-volume, more cost-sensitive applications, such as VoIP. Altera's soft core Nios device that can be implanted on any Altera chip is driving the company into the even larger and harder to penetrate microprocessor and digital signal processor (DSP) market, including 3G wireless applications. In January, Panasonic Mobile Communications chose Stratix FPGAs and the Nios embedded processor for its next-generation 3.5G network base transceiver station. Helped by sharp growth in 3G, communication (wireline and wireless) sales grew 28% in the quarter to 47% of total revenues.

By all measures, Altera is fiscally fit. With cash flowing in from operations at over $300m annually, it is not surprising that net cash grew 6% to $1.13b even as the company continues to buy back stock and spend a relatively minor $25m to $30m annually on capex. For June, management guided another 4%–5% sequential revenue increase, most of it to come out of new products, including wireline and wireless. Gross margin should remain steady at 68% to 69% through the year with R&D declining slightly as new product ramps are completed. March inventory decreased 29% to a 60-day supply, with new products making up the largest component. Despite healthier margins, inventory, and growth, at $20.62 Altera trades at a slight discount to rival Xilinx, with a forward PE (through June) of 30.8.

MEAD'S ANALOG REVOLUTION

NATIONAL SEMICONDUCTOR (NSM)
SYNAPTICS (SYNA)
SONIC INNOVATIONS (SNCI)
FOVEON
IMPINJ
AUDIENCE INC.
DIGITALPERSONA

COMPANIES TO WATCH

ADAPTIX
AMEDIA (AANI.OB)
ATHEROS
ATI TECHNOLOGIES (ATYT)
BLUEARC
COX (COX)
ENDWAVE (ENWV)
FIBERXON
LINEAR (LLTC)
LUMERA (LMRA)
ISILON
LENOVO
MEMORYLOGIX
NOVELLUS (NVLS)
POWERWAVE (PWAV)
SAMSUNG
SEMITOOL (SMTL)
SIRF
SOMA NETWORKS
STRETCH INC.
SYNOPSYS (SNPS)
TEKNOVUS
TENSILICA
VIA TECHNOLOGIES
XAN3D

Broadcom (BRCM)

PARADIGM PLAY: LEADING FABLESS BROADBAND DESIGNS

MAY 2: 29.63; 52-WEEK RANGE: 25.25 – 47.05; MARKET CAP: 9.84B

How many companies emerge from a downturn with record cash and securities? Only an elite few, and among them we number Broadcom, which reports that long-term net cash increased 2.6x over the past year to just under $1b. Call it a successful technology strategy, one that should propel Broadcom far into the future. Not only were March-quarter revenues of $550m up 2% sequentially, but gross margin swelled as well, to 52.1% from 50.6%, pushed by product mix and falling wafer prices resulting from recent capacity expansion in the fab industry. Management expects gross margin to improve yet further next quarter before trending down toward the long-term target of 50%.

At the bottom, EPS held steady at $0.23 as operating expenses increased by $14m due to pay raises and new tech hires as the company continues to invest aggressively in growth. That's good news. With Bluetooth, VoIP, digital TV, GigE, WLAN, and peripherals proliferating while Broadcom is innovating, expect more upside surges going forward. For example, contesting with Marvell to capture the big-bang universe of Ethernet switches, Broadcom recently announced a new custom ASIC GigE switch processor for LANs, extending its lead in functionality and security over its rival.

Though networking sales slipped a slight 3% to $231m because of customer inventory tweaks and weakness in server chipsets, GigE burst forth as Broadcom benefited from share gains at Dell. With enterprise networks beginning to upgrade from fast Ethernet, expect more boosts for Broadcom from GigE switching. And in a sign that Echostar's inventory issue is no more, the satellite-TV service provider's orders helped hoist broadband revenues 18% to $208m. DSL was also strong. Finally, responding to softness in both WLAN prices and the Chinese handset market, wireless sales fell 10% to $112m. But Bluetooth gained as adoption continues in cell phones, PCs and peripherals, and wireless headsets. Broadcom supplies Bluetooth chips to Apple, Motorola, and Samsung, among others.

If we accept the Broadcom's financial forecast for the next quarter and conservatively assume no growth for the rest of the year, we get a baseline EPS of about $0.98 for 2005 and thus a forward PE of 30.2 at a stock price of $29.63.

Corning (GLW)

PARADIGM PLAY: FIBER TO THE EXTENSION

MAY 2: 13.81; 52-WEEK RANGE: 9.28 – 13.95; MARKET CAP: 19.65B

Momentum continues to build at Corning with stronger operating performance across the board in the March quarter. At 13.5%, operating margin has risen to its highest level in 3 years and, along with more favorable tax rates and higher equity earnings, helped net income surge 42% *sequentially* to $252m as EPS jumped to $0.17, from $0.12 in December. Product revenue grew in all segments, with Telecom still leading at 44% of sales followed by display glass (LCD) at 33% of sales. Environmental and life sciences rounded out the remaining 23%.

Fiber volume was down 6% sequentially but prices declined only 2%. Weaker demand in China was offset by stronger demand in North America and Europe due to FTTx builds, which accounted for just over a third of fiber revenue. In the short-term, Corning expects fiber volume to be flat to up 10% in June with prices down 5%. FTTx volume at Verizon should be flat, but in the second half of 2005 revenue may decreased due to price reductions as Verizon is expected both to announce a second fiber source and to work down built-up inventories. Corning estimates that Verizon is on target to pass 2m homes this year. What's Verizon up to for 2006? Corning gets many opinions from inside Verizon, but few of them correlate with the company's actions. So, along with Corning, we wait and see. But Verizon is only one piece to the puzzle. Long-term, with just under 100% of all homes worldwide yet to be passed by fiber and with many regional and backbone builds yet to be started, the fiber prospects for Corning look bright indeed.

The star performer next quarter should be display glass, expected to grow by 10% to 20% as pricing pressures ease. Of note, LCD penetration into TV sales is on track to reach 10% for the year. Since February, Corning has signed four new long-term purchase agreements to provide large-size LCD glass substrates. These agreements include substantial up-front deposits to help defray the significant capital investments Corning is making in this technology.

Accelerating down the road that leads back to investment-grade status, Corning expects to become free-cash-flow positive in the second half of this year and to stay there. The company's debt-to-capital ratio improved sequentially to 36.4% from 41%, and net debt decreased 21% over the past year, to $1.76b from $2.23b. At its recent price of $13.81, Corning stock trades at a forward PE (through June) of 22.6x.

Intel (INTC)

PARADIGM PLAY: MICROPROCESSOR KING MOVES ONTO NETWORK

MAY 2: 23.55; 52-WEEK RANGE: 19.64 – 29.01; MARKET CAP: 145.55B

Investment in newer processes and technologies during the recent semiconductor downturn appears to be paying off for Intel. True, reported revenue of $9.43b was aided by the longer 14-week quarter. But even after normalizing figures to the typical 13-weeks, we find that revenue rose 8.3% over last year with earnings up an even stronger 15.6% on higher margins. Demand was particularly strong for higher-priced chips used in portable devices such as laptops and cell phones, and Intel experienced shortages in chipsets and mobile processors even while its fabs were running at full capacity. Thus, Intel plans to raise 2005 capital outlays to $5.6b, nearly a 50% increase over last year's investment but still no sweat for a company that generated $13.1b in cash from operations in 2004. Most of the investment will go toward cutting-edge processes and new capacity, reflecting the company's confidence in a continued semiconductor market recovery and in the need for 65 nm solutions; Intel expects to ramp four 65 nm fabs within a year and begin shipping 65 nm chips in the fourth quarter. And in a sign of a heating battle with AMD, president and COO Paul Otellini expects Intel to ship millions of dual-core processors in 2005.

Following the rise to 59.3% last quarter, Intel predicts that gross margin will decline to 56% in the second quarter due to lower seasonal demand and

65 nm startup costs. But the company raised its margin projection for the year to 59% from 58%, implying that newer processes combined with the market recovery should boost margins to well-over 60% during the second half of 2005. For investors, a good sign of bottom-line growth was this quarter's EPS of $0.34, up a normalized 23% over last year, helped in part by Intel's $2.5b cash repurchase of 108m shares during the quarter. More than 500m shares (8% of the current diluted share count) are still available for buyback under the program. With the expected revenue and margin decrease in the June quarter, EPS will likely be flat compared to the second quarter of 2004. At $23.55, the stock trades at a PE (through June) of 19.

JDS Uniphase (JDSU)

PARADIGM PLAY: COMPONENTS GALORE FOR THE FIBERSPHERE

MAY 2: 1.45; 52-WEEK RANGE: 1.40 – 3.94; MARKET CAP: 2.09B

Guess what? After 5 years of restructuring, JDSU is, well, still restructuring. With the treasure chest called earnings buried a lot deeper than the company originally thought, paring has now spread to China. (Yes, even low-cost China is too expensive for JDSU.) At its March-quarter conference call, the company announced plans to sell its display-optics manufacturing facility at Fuzhou to Fabrinet, which has been providing manufacturing services to JDSU since 2000. A week earlier, JDSU initiated the sale of two New Jersey plants to Fabrinet and began closing the doors of a Florida site. All this knocks the facility count down to 8 from 12. Actually, the count began around 29 when the restructuring started, but that's ancient history. From the latest gouge, JDSU expects to save $20m per quarter beginning in a little over a year. (Net loss in the March quarter was $23.5m.) Which prompts us to ask: What happens when JDSU finally becomes "fabless" and still doesn't earn a cent? From deep inside the hallowed halls in San Jose will be heard the lament, "Rats, all that contracting, and we still couldn't regenerate."

March sales of $166.3m fell almost 8% sequentially after falling over 7% in December. Gross margin stepped down to 16%, from 17% in December. Prior to December, JDSU posted 6 straight quarters with gross margin between 21% and 25%. None of that makes management's forecast of a flat June quarter very encouraging. For a chronic restructurer with no top-line growth, no profits, and no prospects of either, JDSU's enterprise-value-to-sales multiple of 1.74 (based on the recent share price of $1.45) isn't exactly a bargain. Investor rationale? Perhaps that the company has plenty more cash to waste and that it will be the last of the components companies left standing. (Hey, isn't that why we're still coddling this bear?) We point out that a not-unreasonable enterprise-multiple equal to one year of sales would send share price south to $1.09 based on the March balance sheet; net long-term cash stands at 60 cents per share, down from 76 cents a year ago. Which brings us to the JDSU paradigm: There's plenty of room for a new bottom.

NetLogic (NETL)

PARADIGM PLAY: CUSTOM LAYER 3 AND 4 PROCESSOR

MAY 2: 12.33; 52-WEEK RANGE: 5.92 – 15.00; MARKET CAP: 217.99M

Like icing on a cake, good news covered the good news in NetLogic's first quarter results. The icing was a triple decadence of two one-time orders, which pushed sequential revenue up 43%, and the sale of written-down inventory, which boosted gross margin to 56.6% from December's 48.2%. The likely revenue sweetener was Cisco, now accounting for 84% of sales, up sequentially from 75%. Supporting the icing is a luscious three-layer cake: (1) Minus the one-time sales, revenue still would have been a bit higher than the company's expectations. (2) Excluding the inventory benefit, gross margin would have already matched NetLogic's long-term goal of 52% which was achieved both through faster-than-expected yield improvements and initial shipments of lower-cost products. (3) With the addition of 6 new production customers, total customer count increased to 23, easing concerns that NetLogic's lifeline hangs on Cisco and the lack of direct competition, which will inevitably come.

In the March *GTR* we opined that NetLogic was ripe for upside surprises. If you believe, along with a skeptical market, that life is smooth and that upside spikes only happen once to good technology companies, then you will slice off the Cisco surge from this year's estimated EPS and calculate a forward PE of 27 at today's price of $12.33. Not bad for a fast growing tech leader that sports virtually no debt and that almost tripled its long-term net cash to $107m over the past year. But include the good news of this quarter, and the forward PE for 2005 sinks to 19. And with NetLogic's net processor technology lead, more upside surprises should not surprise you.

Taiwan Semiconductor (TSM)

PARADIGM PLAY:WORLD'S LEADING MICROCHIP FOUNDRY

MAY 2: 8.71; 52-WEEK RANGE: 6.60 – 9.44; MARKET CAP: 40.07B

In its drive to control as much of the advanced chip market as possible, Taiwan Semiconductor remains on target to boost capital expenditures this year by 8% to $2.6b. By pushing 300 mm wafers and 90 nm and 65 nm geometries as quickly as possible, TSMC can lock in many designs and customers to its proprietary processes and thus gain meaningful strategic and cost advantages over its manufacturing rivals.

As share of revenue, 90 nm production grew 149% sequentially in the March quarter to 4% of sales, and 130 nm grew 3% to fill 41% of sales; all other processes decreased as share of sales. TSM is aiming for 90 nm to garner 10% of total revenues sometime in the third quarter. The Taiwan foundry also expects to produce its first 65 nm wafers in December in a low-power version of the process. This will be the fourth generation of TSM chips to use copper interconnects and may be the first TSM generation to use immersion lithography techniques. Altera and others have received from Taiwan Semi functional prototypes of their own 65 nm designs for initial validation and benchmarking.

Capacity also attracts customers, and TSM still expects its production capacity to expand 25% this year. The company can easily feed its voracious investment appetite as cash growth continues to hugely outpace capital spending; last year, $4.6b flowed into the war chest from operations. The Taiwan Titan believes that the inventory correction that has depressed sales is ending, and predicts its utilization rate will nudge up to 80% in June from 78% in March, even as capacity expands. Along with increased production, look for a few percentage points of sequential sales growth, with gross margin holding steady around 39%. Based on management's forecast and the recent share price of $8.71, TSM trades at a forward PE (through June) of 15.3.

Texas Instruments (TXN)

PARADIGM PLAY: PIONEER OF NEW PROCESSORS FOR TELEPUTERS

MAY 2: 25.13; 52-WEEK RANGE: 18.06 – 27.79; MARKET CAP: 41.77B

Though warning that the rate of growth in wireless products could abate in the coming months, CEO Rich Templeton still sees wireless as TI's big driver this year. The March quarter's 5.7% sequential

decline in total revenue to $3b came mostly from a 14% fall-off in wireless sales. But those sales followed a strong fourth quarter for wireless, and wireless revenues were up 15% from a year ago. Already providing about two-thirds of the world's cell phone chips, TI is forecasting further share gains this year. In addition to strong offerings in the "fast-growing" 3G market, which claimed just 4% of TI's 2004 revenues, TI announced last quarter that Nokia will put TI's new single-chip digital processor in GSM handsets, beginning most likely with the low- and mid-functional phones popular in fast-growing, emerging markets such as Russia and Latin America. TI also began sampling the industry's first wireless digital baseband processor, which uses 65 nm geometries. Planned capital expenditures this year of $1.3b, well under operational cash flow, will go primarily toward the cutting-edge 65 nm and 90 nm processes. In a noteworthy development outside wireless, TI leveraged its DSP and power management expertise to bring a new line of digital power-management products to market.

Despite the quarter's revenue reversal, gross margin improved sequentially to 44.9% from 42.3% and operating margin to 16.7% from 15.4%, helped by declining depreciation and increasing fab utilization as production ramped to keep up with shipments. Utilization is expected to continue improving as the semiconductor market picks up. Countering the margin boost, EPS declined from $0.28 to $0.24 largely because of a jump in taxes. On sound financial footing, TI's net cash increased from $4.1b to $4.3b over the past year, and management expects semiconductor revenue to increase about 2% next quarter, with total sales up slightly to $3.1b and EPS of about $0.27 as the company continues its $3b stock buy-back. At $25.13, the stock trades at a forward PE (through June) of 22.6, based on company guidance.

Xilinx (XLNX)

PARADIGM PLAY: PIONEER OF PROGRAMMABLE LOGIC

MAY 2: 26.55; 52-WEEK RANGE: 25.21 – 36.98; MARKET CAP: 9.25B

Xilinx competes neck and noggin with Altera (see above) in the rapidly expanding markets for programmable logic, which is used wherever fast adaptation to new demands is more desirable than the utmost in chip density and performance. Although Xilinx has traditionally had the kind of down market edge that can disrupt the players above, its new hard-core embedded microprocessors will increase hardware customization of its chips and may take it away from the inherent advantages of general-purpose programmable logic devices by emphasizing performance over adaptability. During fiscal year 2005 ending in March, Xilinx introduced the Virtex 4 FPGA family which competes with Altera's Stratix II; Virtex 4 offers three domain optimized platforms from which customers must choose. The *GTR*'s Nick Tredennick thinks Altera's Nios soft-core approach (see above) can better deliver the promises of the high-volume programmable logic device model.

March quarter revenue of $391m was up 10% sequentially. Sales grew across all segments: communications by 11% led by wireless at 20%, storage/servers by 19%, and industrial/consumer by 6%. With a solid free cash flow of $226m in fiscal 2005, net cash grew 4% to $1.65b, allowing Xilinx to increase its quarterly cash dividend to $0.07 from $0.05 and to accelerate its stock repurchase program. Inventory decreased 24% sequentially to a 110-day average, still almost double Altera's leaner 60-day supply. Matched up to Altera, Xilinx's outlook for June was modest, with sales growth from flat to up 4% compared to Altera's 4%–5%. Gross margin of 62% hangs below Altera's 68%, and operating margin of around 17% to 18% pales to Altera's 27% to 28%. Despite more challenging margins, inventory, and growth, at $26.55 Xilinx trades at a slight premium to rival Altera, with a forward PE (through June) of 32.8.

Zoran (ZRAN)

PARADIGM PLAY: DSPS FOR DIGITAL CAMERAS & DVDS

MAY 2: 10.93; 52-WEEK RANGE: 8.71 – 18.90; MARKET CAP: 472.66M

Fabless supplier to the digital entertainment and digital imaging markets, Zoran reported that its DVD business is strengthening as the inventory correction affecting the global DVD industry nears an end. The DVD overstock was largely responsible for Zoran's recent sales trough. In the March quarter, the company's DTV business grew 30% sequentially while digital camera revenues rose 37%. Notably, the growth in the imaging business came during a normally down quarter—and delivered profits.

Zoran's COACH (camera-on-a-chip) digital camera processor captures images from a sensor and converts them into JPEG and RAW files for dispatch to a memory card, to an Internet link, or to a video device. COACH 7 is now powering Samsung's new Digimax V700 and Digimax U-CA 5 high-performance digital cameras, and Zoran recently announced COACH 8, the "first and only" integrated solution that captures high-quality video and supports Windows Media Video and HDMI on digital cameras and camcorders. On the DVD front, Samsung has chosen Zoran's new Vaddis 8 family of DVD multimedia DSPs for its new generation of DVD players. Vaddis 8 replaces Vaddis 6 and includes an integrated RF component. Though Vaddis 6 made up about 75% of Zoran's DVD sales in the December quarter, the company expects that Vaddis 8 will capture a huge majority of entry-level DVD revenues before the end of the year. On the strength of these higher margin businesses and the quick transition of customers to Zoran's newer generation DVD products, the company expects to return to profitability.

Zoran's skid indeed appears to be ending. Following a 38% sequential slide in revenues in December, March sales of $73.9m were down just a slight 1%. Management expects about a 20% rise in revenues next quarter while operating earnings recover to just under breakeven. The stock trades at a reasonable enterprise-value-to-sales-multiple of 1.2 based on management's June forecast and the current share price of $10.93. But be cautious with this one. COACH competes with Canon's and TI's media processors, and the smaller and more narrowly focused Zoran is probably a riskier way to play this booming field.

verter that transmutes the received RF into microvolts of DC to run the memory and processor.

Founded by Mead and his student Chris Diorio, the company is the global leader in shaping the new industry RFID standard and implementing it in silicon. One of its first orders is for 200 million devices at 8 cents apiece. The company is expected to go public next year. Meanwhile, its

Assuming that the destructive policies will not be sustained, U.S. technology stocks have become a raving buy

kin in the Mead stable, imager innovator **Foveon** and haptic leader **Synaptics** (SYNA) of iPod touchwheel fame, have good news too (though cryptically concealed).

Also during my book tour, I discovered that there is indeed something new in wireless technology that Qualcomm may not have entirely under control. Although the San Diego colossus is fully aware of the uses of multiple input and output antennas and has advocated their use in 802.11n, Chief Technology Officer Roberto Padovani downplayed MIMO's practicality in larger cellular systems in a recent interview with us.

The advance is called MIMO (multiple input, multiple output) and it fulfills Qualcomm founder Andrew Viterbi's comment to me in 1993 that the only untapped frontier in wireless is the spatial dimension. I had not previously grasped the degree to which MIMO excels the existing state-of-the-art. It transcends multiple antennas with their controlled beams and nulls. It goes beyond code division multiple access (CDMA) rake receivers with their mitigation of destructive interference between multipath signals, and beyond orthogonal frequency division multiple access (OFDM) with its efficient use of Fourier transforms to optimize available bandwidth over large spans of spectrum, whether wireless in WiMax or wireline in John Cioffi's discrete multitone digital subscriber line (DSL) and its adaptive "water filling algorithm." Instead, in the hands of a group of brilliant young Stanford graduate students and professors working at **Airgo Networks**, MIMO manages to capture an entirely new source of bandwidth that can increase the Shannon capacity of a particular spectrum space by a factor of between seven and ten.

MIMO achieves this miracle by integrating all the multipath signals—the scattered shards of any transmission as it bounces off the ground and off obstacles in its path—into a multidimensional mathematical synthesis of frequency and space. Sublimating the multipath energy into an identifiable and usable constellation of spatial and frequency information based on the physical conditions in the channel, it does not divide spectrum but multiplies it. Using angles, doppler shifts, and delay spreads, Airgo achieves a multivariate complex integration that actually expands the channel by the minimum of the number of receive or transmit antennas and the number of multipath reflections. The more multipath the better. Not a mere enhancement of a zero-sum optimum of existing bandwidth, it is a fundamental advance into space which enlarges the spectrum. I will be writing about it in detail in future newsletters as Airgo, at the moment the aspiring Qualcomm of MIMO, moves toward its IPO.

Things look bad in Washington. But assuming there are limits to self-destructive fatuity, this is a raving opportunity to buy, starting with Synaptics, Qualcomm, **EZchip** (LNOP), **NetLogic** (NETL), **Equinix** (EQIX), and **Corning** (GLW). I admit I made my recent purchases too early and got caught in the last downdraft. But presuming that someone in Washington grasps what is at stake in China, you can now pick up some of the crown jewels of U.S. technology for dimes on the dollar.

— George Gilder, May 2, 2005

Got Questions?

Visit our subscriber-only discussion forum, the Telecosm Lounge, with George Gilder and Nick Tredennick, on www.gildertech.com

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