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The Barron's Bears

"*Our Celestial Empire possesses all things in abundance and lacks no products within its border. There is therefore no need to import the manufactures of outside barbarians.*"
—Emperor Qian Long, 1793, to King George III's Ambassador (quoted in *Fast Boat to China* by Andrew Ross).

It's mid-winter, snowing again outside my window. After some 60 days of cross country skiing so far in Western Massachusetts, two schusses to Silicon Valley, and my son Richard a newly instrument rated pilot, I feel pretty good. With Dick Sears' Gilder Technology Index (*www.GTIndex.com*) up some 325 percent since the crash and 27 percent in the last 52 weeks, I feel pretty flush. But as I prepare for another day of Nordic sweltering up and swooping down, something nags in the back of my mind.

What could it be? Flaws in the Linley Group's projection of **EZchip**'s (LNOP) coming three year revenue ramp? A slow IPTV (Internet protocol television) transition dragging

(CONTINUED ON PAGE 2)

Inside:

FEATURED COMPANY: NetLogic (NETL)

Whoa! It seems the only thing flying faster than NetLogic's processor speeds these days is the company's stock price, up by a whopping third so far in the first month or so of the year. But after listening to CEO Ron Jankov, it's hard to be anything but buoyant.

Convergence of VoIP and video on the Internet is just beginning, and more complex traffic means more wire-speed processing at every node. Wire-speed routing or switching means bypassing the usual memory access algorithms that eat up scores of nanoseconds for each hit on an address look-up table and resorting to direct content addressable memory (CAM) technology. Content Addressable Memory or associative memory works like a neuroscientist's model of the brain, so NetLogic calls them "knowledge" processors. Incorporating comparison logic within the memory itself, a CAM can be tapped by its own contents, simultaneously scanning all the prestored data in parallel for a match.

Warping past and future in a knowledge processing estimate, Jankov estimates that just to keep pace with these demands since 2003 his devices will have increased their performance some 300-fold by 2008. And according to Jankov, he's the only one who can keep up—he uses only four chips in parallel compared to ten for his rivals (until now Cypress and IDTI), gunning his fastest chip to 400 MHz compared to 200–250 MHz . He accomplishes this feat of massively outpacing Moore's law by focusing his designers on this problem alone and by innovating in leading edge design tools.

Until now, NetLogic's forte has been layer 3/4 processing of headers with the flagship NL5000 family and more recently the NL6000 line, the second-generation knowledge-based processor, which doubles performance and halves the power. Beginning later this year the company will be going after layer 2/3 switches and routers with NetLite, followed by products that process full packets at layer 7, the application level. Jankov expects the NetLite market to begin rapid growth by 2007 as requirements of voice and video drive increased functionality and performance into entry-level Internet access boxes—NetLite sheds the highly parallel searches and deep pipelining of the NL5000/6000 family and thus some of the power and price.

In layer 3 you just look at the header and don't care about the content, video or whatever. At layer 7, all packet content needs to be analyzed, resulting in a massive increase in data to be examined since 80% of a packet is content. The first product in the layer-7 series will be capable of processing application networking and security functions (layer 7 switching/routing, threat management, intrusion detection and prevention, antivirus gateways) at 10 Gbps wire-speed, the fastest in the industry. Sporting such speed, NetLogic's chips can include more security features than competing chips, and networkers will for the first time have enough speed to inspect every single packet of data that flows through them. The market for applica-

(CONTINUED FROM PAGE 1)

tion-layer networking and network security is expected to be one of the fastest growing tech segments over the next decade, as service providers, enterprises, consumers, and government continue their migration toward layer-7 routing and security. In this market, Jankov will be competing against **Cavium**, **Sensory Networks**, and **Tarari** as he attempts to expand into servers from **Sun** (SUNW), **HP** (HPQ), **Dell** (DELL) and into security software companies such as **McAfee** (MFE) and **Symantec** (SYMC). He is working closely with customers on this for launch in 2007.

Topping off the endless good news, **Cypress Semiconductor** (CY) has agreed to sell all of the assets and intellectual property of its standard network search engines to NetLogic—including the Ayama and NSE70000 families and the Sahasra 50000 algorithmic search engine family—for $50m in stock (about a 7% dilution at the current price) with an additional $10m each in cash and stock if revenue goals are achieved a year after closing. Sahasra's algorithms should enable NetLogic to offer higher-performance, reduced-power, and lower-cost layer-7 products. Jankov believes the acquisition gives him a four-year head start here. At the low-end, Ayama and NSE70000 will expand both NetLogic's offerings and non-**Cisco** (CSCO) customers in the level layer 2/3 switch market, where Cypress has a strong presence.

To date, Jankov boasts 54 design wins, with 32 in production. Cisco fed 67% of sales in 3Q, down slightly from 70% in 3Q, with Alaxala (the joint venture between **NEC**/NIPNY and **Hitachi**/HIT) at 10%, down from 11%, which means revenue from other customers increased 28% sequentially compared to the 6% sequential increase in total sales. Jankov believes he has a 25–30% market share, mostly at the high-end, before moving down market with NetLite at 4x the processing speed of competing chips. Over time, Jankov expects to spread his customer base at layers 2–4 to the likes of **Huawei**, Huawei-**3Com** (COMS), **Force10**, **Juniper** (JNPR), **Alcatel** (ALA), and **Foundry** (FDRY).

But even if NetLogic turns up in every box across the net, are investors boxing themselves in at the current price? We continue to affirm, as we have over the past year, Jankov's largely unsurpassed prowess in wirespeed knowledge processing. But tech leads almost always shrink over time in vibrant markets, and when leads don't shrink, it usually means the market is doing it instead. Or … do you *really* believe Jankov when he claims that Cypress gives him a 4-year lead in new products? You'd better if you're buying now, because it will take such a lead to earn the current valuation.

Based on management's 1Q guidance, NetLogic should have a trailing-twelve-month EPS of about $0.91 (ex-options) by March 31, which at the recent interday trading price of $37.35 yields a slightly forward-looking PE of 41, implying earnings growth to $1.81 in 2007. With lower margin NetLite revenues ramping next year along with increased competition, don't be surprised if gross margin soon settles from the current 63% closer to the company's long-term target of 57%. Based on that assumption, while holding operating expenses steady as a percentage of sales and increasing income tax to 20%, we discover that NetLogic will need to increase revenue by 250% in two years, to $291m, to earn its keep.

Now, consider that in December revenue was up 6% sequentially and 39% year-over-year, and that from last March to next March, revenue is forecast to increase only 18%. Ugh. Markets are a lot harder to understand and predict than technologies (after you've got the paradigms right); we've been at it for years with **EZchip** (LNOP). For Jankov to fit into the shoes of this valuation, he's got to hope for a rapid ascent of 10 GigE (where his layer-7 products stand out), a tip-top transition down market (already delayed by almost a year due to software problems), and a successful melding of the Cypress purchase—all sans increased competition. Do you want to make that bet with him? If he succeeds, you get a double in two years at the current price. If he doesn't come close, the downside is, well, way down. NetLogic is tech star, but not worth the risk at this price.

So yes, Whoa! This thing has more than tripled in the last year since we put it on the list. You should wait for a better price before buying more of this estimable company.

– Charlie Burger, February 8, 2006

down an already highly valued **Sigma Designs** (SIGM)? The development of nuclear weapons in Iran in the hands of the demented Abenitler? Incineration of the embassies of Denmark and Norway by the art critics of Syria? David Huber's resignation as CEO of **Broadwing** (BWNG)? A decision by China to begin spurning dollars as our politicians pretend to want? A revenue sag at **Power-One** (PWER)? Hyperfine weapons from **Essex** (KEYW) to find the terrorists and zap their nuclear knuckleheads? A U.S. decision, under the guidance of Senators Hilary and Schumer and Treasury Secretary Snow, to stop importing the manufactures of outside barbarians?

Our Managing Editor and Editor Manager Mary Collins says it is none of these important matters. Could it be a "consumer strike?" An air controllers' strike? None of the above. What she thinks should be on my mind is that not only is the *GTR* no longer going to be printed (it moves to the web only for all new subscribers after April), but the February *GTR* has not yet even been *written*.

Uh, Oh. That is serious. That's my department. Too much happy skiing. Too much heavy lifting rumination. My eyes drift to huge piles of *Barron's* looming across my desk and flapping over my chair. Perhaps they can solve my problem. When in trouble in February make four thousand words of fun of the demand-siders at *Barron's*. This early date signals to all us believers in groundhogs and Warren Buffet to don shorts and other cautionary apparel and take a polar bear plunge into the annual *Barron's* Roundtable, where once again the venerable Saturday publication devotes acres of type over three weeks to its "daring dozen," its "provocative panel," its nattering nabobs of Barronial angst, its "jousting, jesting bunch" of super stock pickers, as they "share their views on the prospects for stocks, bonds and the global economy in 2006."

Dominant dollar

Would they fail me this year? For the umpteenth consecutive time, these sages lead off their concerns with the possibility of a consumer strike. The panel is divided on when this appalling event will transpire, but all seem to agree that consumer spending makes the world go round. These guys are demand-siders. I explained it last year (*GTR* February 2005), and being a good citizen I recycle: "*Barron's* reliably captures the perpetual mystification of demand-side economists in a supply-side world—their rearview trend lines, their cynicism toward enterprise and technology, their simultaneous disdain and deference toward the nincompoop consumer and his 'sentiment,' their delusional belief that foreign investors holding dollars differ significantly from American investors holding dollars, and their near-astrological preoccupation with macroeconomic 'gaps', deficits, and imbalances and strange skepticism toward assets, which are normally regarded as vain or spurious compared to debt."

With stock bubble gulls and Chicken Littles coming home to roost in American markets and fat turkeys and

peacocks gathering in Asian markets, the *Barron's* bears lend a new frisson to the threat of an Avian flu pandemic. To this peril, the estimable Marc Faber this year adds nuclear war. He omits to mention the possibility of meteors or Senator Charles Schumer's trade policy, but elsewhere he panics over global warming. His upside is Asian real estate. In general Faber predicts the same disasters he and his cohorts predicted last year and the year before that, and so on back over the centuries to his precursors chronicled by Thomas Macaulay's *History of England*, which recounts hundreds of years of similar alarms about the national debt of Britain.

"Those who uttered and those who believed that long succession of despairing predictions erroneously imagined that there was an exact analogy between the case of an individual who is in debt to another individual and the case of a society which is in debt to part of itself; and this analogy led them into endless mistakes…They were under an error not less serious touching to resources of the country. They made no allowance for the effect produced by the incessant progress of every experimental science, and by the incessant effort of every man to get on in life. They saw that the debt grew and they forgot that other things grew as well as the debt."

Today, the incessant spread of technology and trade has made the relevant "society" that is "in debt to part of itself" nothing less than the entire economy of global capitalism.

That point, however, will not get you far at the *Barron's* Roundtable, where everyone upholds a model of separate economies transacting across national borders. So far, according to Faber, the Chinese have propped up our economy by buying our money. But the usually sensible Mario Gabelli wonders: "Why will the Chinese continue to buy our dollars? At some point, won't they turn that tap off?" Gosh, what would Macaulay think of that?

As usual, though, I ask: When will Warren Buffet and George Soros stop selling dollars? When will the *Barron's* Roundtable stop disparaging the dollar? Why harp on the Chinese? Are their dollars somehow magic? They actually like the dollar. It's Americans we should worry about. Under advice from Buffett and the *Barron's* gurus who think the U.S. economy is meaningfully monickered as "Squanderville," Americans can sell dollars just as fast as Asians and they have a lot more of them to sell.

In any case, across the *Barron's* panel simmers wide sentiment that the "dollar is doomed." These guys have it exactly wrong. In fact, impelled by the spread of capitalism, by the expanding share of U.S. financial markets, and by Chinese adoption of a near dollar standard for its currency, the dollar is becoming increasingly dominant.

The most globalized sector of the dollar economy and also the chief source of enduring economic growth is technology. But no one present at the Roundtable seemed to think that technology is of any particular importance. Art Samberg did tout BlackBerry maker **RIM** (RIMM)—good call in the face of the incredibly stupid patent suit from **Novastar** (NFI). Technologist Fred Hickey wants to short **Intel** (INTC) and **NetLogic** (NETL). Then he urges us to buy **3Com** (COMS) as a way to bet on **Huawei** in China (a good idea if Huawei were not disinvesting from 3Com). As a remedy for the dollar doldrums, Gabelli touts health, distributes Dannon yoghurt to all parties, and suggests purchase of the shares of France's **Groupe DANONE**.

Nonetheless, there was not enough yoghurt in *Barron's* to fill up a February issue of the *GTR*. I turn for help to Sandy Fleishmann, who reports from the Money Show in Orlando that the *Barron's* panic about China is spreading toward Disney World. To address this perennial worry, which reiterates the fears of "yellow peril" from the fifteenth century, I read a couple of new books on the subject. Published by the prestige Random House imprint of Pantheon is *Fast Boat to China* by Andrew Ross of NYU, offering a dolorously detailed account of the process of outsourcing. Self-published is *Our Brave New World* by Charles and Louis-Vincent Gave and Anatole Kaletsky of the Hong Kong investment firm **GaveKal Research**. This mind-clearing new text upends all the cherished demand-side assumptions of the roundtable and points to huge opportunities in the American stock market and our telecosm list. Among our favorite innovators and outsourcers is Power-One.

> Nearly all the companies on our list are platform companies on the right side of the most promising transformation in the history of the world economy.

Power struggle

As semiconductor geometries shrink, on-chip currents rise and voltages fall. Since power rises by the square of the current, this inexorable trend makes power regulation on circuit boards much more complex and treacherous. Analog architectures typically meet the problem by assigning one hard wire per function. Thus thirty power-related functions often require thirty wires, interfaces galore, and a lot of intricate circuitry, all driving up costs and complexity. But just as Moore's law changed the cell phone industry from an analog radio business to a digital computer business, so will it trigger a move from analog to digital in board-level power management. With hundreds of millions of transistors on a single chip, digital solutions rapidly overwhelm analog ones in functionality, flexibility, and compactness. And the leader in digital solutions, with some 50 design wins for its new Z-One technology and an array of possibly show-stopping patents, is Power-One. This company is ready to supply the global market for advanced telecom and storewidth circuit boards and blades just as the industry begins a long upsurge

TELECOSM TECHNOLOGIES

Advanced Micro Devices (AMD)
Altera (ALTR)
Analog Devices (ADI)
Broadcom (BRCM)
Broadwing (BWNG)
Cepheid (CPHD)
Corning (GLW)
Energy Conversion Devices (ENER)*
Equinix (EQIX)
Essex (KEYW)
EZchip (LNOP)
Finisar (FNSR)
Flextronics (FLEX)
Ikanos (IKAN)
Intel (INTC)
Microvision (MVIS)
National Semiconductor (NSM)
NetLogic (NETL)
Power-One (PWER)
Qualcomm (QCOM)
Semiconductor Manufacturing International (SMI)
Sigma Designs (SIGM)
Sprint Nextel (S)
Synaptics (SYNA)
Taiwan Semiconductor (TSM)
Texas Instruments (TXN)
Xilinx (XLNX)
Zoran (ZRAN)

*** Added this month**

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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

FEBRUARY 8: 40.86; 52-WEEK RANGE: 14.08 – 42.42; MARKET CAP: 16.51B

Say you're a PC maker with orders to fill. That's good news, until you discover that you're short chipsets from Intel and are stuck with Intel microprocessors you can't use. What do you do? You turn to AMD, of course. Such a scenario would explain how Intel fell short on filling orders and simultaneously built inventory during December while AMD watched its inventories drain.

AMD is giving Intel the runs as investors flee the floundering giant for its nimbler nemesis. On January 17, Intel reported a disappointing fourth quarter and blamed it on a shortage of chipsets and weak PC sales. A day later, AMD boasted that its share of the microprocessor market had surged to 16.3% in the quarter, up sequentially from 11.9% and from 9.6% in the year-ago quarter. And in a virtual declaration of war, CEO Hector Ruiz targeted a 25–30% market share by 2008. Investors aren't waiting for the final gunshot. By market close on 19 January, Intel had retreated 12% in the two days since the 17th, while AMD had risen 13% to close at $37.13.

Altera (ALTR)

PARADIGM PLAY: SOFTENING HARDWARE, HARDENING SOFTWARE

FEBRUARY 8: 20.23; 52-WEEK RANGE: 15.96 – 22.99; MARKET CAP: 7.33B

CEO John Daane claims Altera was the fastest growing programmable logic company in 2005, with the new Stratix and Cyclone series FPGAs driving market share gains. Our revenue check confirms this, with Altera up 11% over 2004 compared to rival Xilinx's paltry 3.7% increase. But…revenue at rival Xilinx grew faster by all counts during the December quarter, up 13% sequentially and 27% over the year ago quarter compared to Altera's down 3% sequentially and up 18% year-over-year.

Broadcom (BRCM)

PARADIGM PLAY: LEADING FABLESS BROADBAND DESIGNS

FEBRUARY 8: 70.78; 52-WEEK RANGE: 27.37 – 71.51; MARKET CAP: 24.13B

Last spring we alerted you to look for Broadcom to surprise with growth spurts during the coming year. After sales surged 10% sequentially in 2Q and the stock nearly doubled off its April low to $44, we still liked the price. Enterprise networks had just begun upgrading to GigE, Bluetooth continued to ascend in 3G cell phones, notebooks, mice, keyboards, PDAs, printer,s video players, stereo headsets, you name it, and also taking off, with Broadcom on board, were sales of HDD set-top boxes for satellite and cable customers.

"All of the above" came together in 4Q with an eruptive 18% sequential revenue pop, pushing operating income to $1.46 for the year. Wireless products grew 45% sequentially, led by Bluetooth and cellular broadband; networking gained 10% on the back of GigE; and broadband bumped-up 5%.

Corning (GLW)

PARADIGM PLAY: GLASS DISPLAYS & FIBER TO THE EXTENSION

FEBRUARY 8: 24.11; 52-WEEK RANGE: 10.77 – 25.76; MARKET CAP: 36.74B

"We've only just begun" is the theme of Corning's glass display business, benefiting as LCDs transition to TV monitors from computer screens. In the US, penetration into TVs became noticeable only last quarter. As the LCD display business heats up, more glass makers are jumping in, prompting CFO Jim Flaws to predict more dramatic price declines ahead. That's good news for Corning. The faster prices fall, the faster the market grows and the more noticeable becomes Corning's volume and technology lead over its smaller, less experienced competitors.

Energy Conversion Devices (ENER)

PARADIGM PLAY: OVONIC MEMORY BACKER

FEBRUARY 8: 45.75; 52-WEEK RANGE: 16.27 – 57.84; MARKET CAP: 1.35B

Rejoining the list this month, with its winning next-generation, non-volatile memory technology, is ENER. Watch this thing closely and buy on major dips. They will come.

Intel (INTC)

PARADIGM PLAY: MICROPROCESSOR KING MOVES ONTO NETWORK

FEBRUARY 8: 20.67; 52-WEEK RANGE: 20.50 – 28.84; MARKET CAP: 124.62B

Buoying Intel is a war chest of $10b in net cash (compared to AMD's $500m of net debt) and cash flow of $13b. If Intel stays on the straight and narrow, it should come back strong in a year or two.

The stock fell over 11% to $22.18 on the day following the 4Q call. The backward-looking PE of only 15.8x is probably still too high for traders since earnings will inevitably decline this year as spending spikes. But for patient investors, it's a bargain.

Power-One (PWER)

PARADIGM PLAY: DIGITAL POWER MANAGEMENT CHIPS

FEBRUARY 8: 5.81; 52-WEEK RANGE: 4.08 – 7.22; MARKET CAP: 494.99M

The leaven of restructuring and digital power is starting to work, design wins are being kneaded in, and now we await the long looked for revenue rise. (See the Power-One February update available online.)

Texas Instruments (TXN)

PARADIGM PLAY: PIONEER OF NEW PROCESSORS FOR TELEPUTERS

FEBRUARY 8: 20.72; 52-WEEK RANGE: 22.51 – 34.74; MARKET CAP: 49.71B

The world's largest chip maker for cell phones continues to ascend on the rising tide of advanced applications for mobile devices and consumer electronics. Total revenue for all of 2005 was up 6% to a record $13.4b as operating margin also reached a record 20.8%. During the December quarter alone, 3G wireless sales exceeded $1b.

Online Bonus Material: For additional analysis on AMD, Altera, Corning, Energy Conversion Devices, Intel, NetLogic, Power-One, and Texas Instruments, plus financial updates on Broadcom, Xilinx and Zoran logon with your *GTR* subscriber ID at www.Gildertech.com.

in response to some 200 million broadband connections around the globe and billions more to come.

On these boards, every function adds cost and complexity. Using digital technology, added functions are often free, and engineers can design power modules in 10 percent of the time with 90 percent fewer components compared to analog. Digital can save 50 percent on board real estate. Changes can be made on the fly with a graphic user interface, avoiding lengthy and costly reengineering and re-layout.

Analog will continue to be preferred for low-level boards and simple consumer devices, battery chargers, and many single-voltage applications. But for the complex circuit boards of the global broadband rollout, you want to get rid of the mazes of criss crossing wires, each controlled to a precise analog specification and insulated against interference. Digital off-on codes become ever more attractive and even necessary. As the first to grasp this need, Power-One remains the only company with a complete digital-power solution. Meanwhile, amid brash dismissals of the technology, rivals are engaged in a panicky drive to duplicate it. As a step toward digital power, **Emerson Electric** (EMR) last week announced it was buying and bailing out Power-One's lagging rival **Artesyn Networks** (ATSN).

But Power-One's digital technology is a fundamental innovation that will not pay off fully for half a decade. In the meantime, restructuring has already saved Power-One from a potentially disastrous year and quarter. With sales during 2005 down 6.4 percent compared to 2004 and down 4.3 percent sequentially, the company reported that operations broke even in the December quarter. Power-One has exited restructuring with no debt, a liquid current ratio of almost 2, and net long-term cash of $86 million. With the traditional product lines picking up steam ahead of the digital avalanche, the current market cap of $489 million (at $5.66 per share) comes to a conservative 1.87 times 2005 revenue. A return the historic ratio of 2.75 times revenue would nearly double the stock price to $10.40 if revenue ascends as forecast by management. If Power-One outperforms all other companies in digital power and grows to dominate a market expected to reach billions in sales, the stock could become a 5- or 10-bagger from current levels by the end of the decade.

Power-One's restructuring, though, in large part entails outsourcing and globalizing. To appraise the Power-One strategy, and the strategies of most of the companies on the Telecom List, it is necessary to understand the impact of outsourcing. Is it depleting the skill base of the U.S. economy in a futile and transitory quest for cheaper workers overseas, as Ross's book contends? Or are U.S. companies creating a revolutionary new form of business organization, as GaveKal asserts, enriching the U.S. and the world?

Within Power-One itself, it seems to some observers that Ross's catastrophe theory is correct. The estimable Glenn Gong of our Gildertech.com Subscriber Forum posts a recent complaint from a Power-One insider:

"*Not only am I a stockholder in Power-One, I am an employee. I am using this board to voice my frustration with the company, not to bash it.*

For the last four years, the employees have shouldered the burden of the apparent ineptitude of management to respond to changing market conditions. We have said good-bye to too many fellow employees and friends. We have watched revenue decline and profits disappear. We have listened to empty promises of a turnaround… or for things to at least get better. All of us have taken an active effort to control costs. We have assumed many extra duties and often times we work after hours. We have seen sites shut down and employees sent packing, only to see bizarre investments in other areas. A lot of employees have turned down other opportunities out of loyalty to Power-One in the hopes that things get better. Four years of decline. Am I alone in my frustration?"

Expressing sympathy for the employee faced with an outsourcing company, Glenn juxtaposed a post from **Stephens&Co.**, which follows Power-One closely and casts some light on the employee's complaints.

"We spoke with management at Power-One last week regarding its recently announced plans to restructure its Telecom Power Division. The tone of the call was clearly somber since last week the layoffs associated with the restructuring plan were announced internally.

The layoffs went much deeper than what was discussed in the Company's recent quarterly conference call. On that call, management primarily discussed restructuring the Company's Telecom Power Division, which is headquartered in Norway. Based on our most recent discussion, we now know that PWER is also moving the manufacturing operations of its recently acquired Di/Dt division from Carlsbad, California, to the Dominican Republic and China.

Another example of the deeper than previously announced restructuring initiatives is the change at PWER's design center in Andover, Massachusetts. This design center has its own surface mount manufacturing line that is used for prototyping. Management is moving this manufacturing line and, as a result, laying off a number of people whose job it was to keep this surface mount line running. This move will not affect any of the design engineers in Andover. They will simply have to get by without a surface mount line for prototyping.

We believe that these moves, while emotionally difficult for management to implement, send a number of signals to investors. We believe that the speed and depth of this restructuring effort reflects the seriousness of PWER's resolve to return to profitability by the third quarter. While the extent of the restructuring is clearly broader than our original estimates, management assures us that it has been very cognizant of not cutting so deep that the cuts could negatively impact revenue or potential growth.

We have further confirmed that the entire scope of this restructuring was included in management's estimate of a $20 million to $25 million restructuring charge that it plans

to take in the current quarter.

While the layoffs and plant closures associated with this restructuring are not a pleasant activity, they are clearly necessary for the Company to achieve its goal of profitability by 3Q05. Once this is done we believe that investors will begin to focus on the positive impact on the Company of the Z-One technology, which we have advocated for some time now as the reason to invest in PWER. We reiterate our *Overweight/Volatile* rating and our $13 price target."

Chinese miracle

The Power-One predicament and the *Barron's* debate are part of the global transformation described so differently in the two books. Echoing in part the complaint of the Power-One employee's post, Ross asserts that outsourcing enriches the investors and executives at the top of American multinationals at the expense of workers in both countries. Interviewing employees in scores of companies across China, he depicts the country as a sweatshop, where people labor as long as 16 hours a day and still face the likelihood of being laid off, as their employers swivel restlessly around the globe looking for yet lower wage levels. In all countries, including China, most sorely victimized are knowledge workers, whose skills are extracted and transferred to cheaper backwater economies. "It is a chilling task of science fiction to imagine what kinds of future technologies will be developed to make this extraction all the more efficient." According to Ross, the outsourcing movement is just another phase in the ceaseless campaign of multinationals to "avoid paying a market wage and a responsible amount of social security for their 'fully loaded' employees."

> Consumption, wealth, incomes, profits, and jobs all are soaring in both the U.S. and China.

In the U.S., the campaign also takes the form of unneeded immigration. The U.S. information technology industry "conspired to create the illusion of an IT worker shortage during the 1990s," as a pretext for importing immigrant engineers under the H1B program. There is in fact ample software and engineering talent in the U.S., Ross claims, mushing into a homogeneous pool the multifarious specializations needed in technology companies. But emerging in China and India, he asserts, is a real dearth of information technology workers. Indeed, he sees acute shortages of engineering talent in China, where in Shanghai and other industrial centers some 25 applicants seek each new high technology job.

Ross's overall tally of China-related losses is 1.5 million American jobs between 1989 and 2003, with the rate of job displacement doubling after China joined the World Trade Organization. The bulk of the displacement occurred in highly skilled and technologically advanced areas, such as electronics, computers, and telecommunications. Indeed, says Ross, China now accounts for the entire U.S. trade deficit in advanced technology products.

Despite his general Marxoid angst, Ross presents much fascinating reportage about the Chinese miracle. He gives in depth reports on the Chinese semiconductor foundry **Semiconductor Manufacturing International** (SMI), discrete analog chip manufacturer **ON Semiconductor** (ONNN), and optical component producer **AU Optronics** (AUO). Contrary to a widespread view in the U.S. government, he shows that Taiwanese industry has essentially given up on remaining separate from the mainland. Some 300 thousand Taiwanese have moved to Greater Shanghai and Taiwanese have invested some $56 billion on the mainland. Mainland operations already comprise some 63.3 percent of Taiwanese output.

Since in microchip manufacturing such Taiwanese firms as **Taiwan Semiconductor** (TSM) and **United Microelectronics** (UMC) are close to the world lead, just behind Intel and **IBM** (IBM), the increasing convergence with the mainland renders futile the U.S. effort to prevent China from acquiring advanced semiconductor processes. Including the "silicon island" of Taiwan, China is already the world leader in volume of chip production and is close to a world leader in the technology.

Fleeing the ever-growing costs of production in Suzhou and Shanghai, Ross says, the multinationals are now pushing out from the coastal free zones into China's Western frontiers in Sichuan Province and its capital Chengdu. For example, ON Semiconductor of Silicon Valley maintains a major plant in nearby Leshan, acquired through a majority holding in **Leshan-Phoenix Semiconductor**, which makes discrete analog devices on six-inch wafers. This move west, according to Ross, creates huge anxieties among workers left behind in Shanghai and Suzhou, who fear losing their jobs.

But in describing this process, Ross ties himself in knots. In the Marxist canon, workers can have no power without unions. Yet he shows that non-union workers in Suzhou have somehow managed to jack up their wages to such levels that they supposedly jeopardize their jobs. How do they do it? Ross knows: By threatening to leave for another job! What an idea! But Ross also wants to have these workers seem like near slaves, resenting their bosses and sullenly resisting supervision. Depicting what is an amazingly free capitalist job market, he declares that except for a few doctrinaire boobs like me it is obvious that no free market exists in China—that all is controlled from Beijing. At the same time, Ross claims preposterously, that "the transition to a liberalized economy hurt many more than it helped." The only winners he can see are executives in rich multinationals who capture ever-growing profits from exploiting and immiserating workers around the globe.

Contending that "Mao built a strong modern society with a technologically advanced base" with a high degree of equality and well distributed healthcare, Ross asserts that these gains are being sacrificed by current Chinese leaders devoted

to "the plunder-happy world of free trade." Need for healthcare in China must have been acute with 70 million dying young under Mao's plunder-free regime.

Win-win economics

Ross's chief complaint, when all is said and done, is that income gaps are widening both in China, where poverty is being massively overcome, and in the U.S., where corporate profits are said to benefit chiefly the "rich." Yet for all his talk about China-related U.S. job losses, which are minuscule compared to the 25 million jobs that turn over every year, the U.S. remains in an employment boom compared to all Ross's preferred Euro-socialists.

Consumption, wealth, incomes, profits, and jobs all are soaring in both the U.S. and China. But a coarse calculus of inequality always increases as economies grow (the bottom incomes have a floor but there is no ceiling at the top). Most of Ross's data on job losses and pay stagnation comes from the period between 1999 and 2003 during a technology depression, stock market crash, and a war against terror. These developments had virtually nothing to do with China, though Chinese growth helped overcome them. By 2006, as Ross's book comes out, the US economy was setting new records in disposable incomes, jobs, net household wealth, home ownership, share ownership, and other indices of wide distribution of the benefits of globalization. Meanwhile in an economic miracle unprecedented in world history, the annual per capita income in China had risen from $50 in 1970 to $1,700 across the entire country and perhaps to double or triple that level in the free zones.

In *Our Brave New World* GaveKal Research offers a clear explanation of how these results were achieved.

To sum up the fundamental errors in the demand-side economic model that informs Ross, Faber, Buffet and the other *Barron's* bears, GaveKal limns out in broad strokes the example of a Dell computer that is largely manufactured in China. Let's say that it sells for $700 in the United States. To the economist, the import of the computer entailed an import charge on the current account and an increase in the trade gap of $470. Compensating for this loss are profits totaling $245 for Intel, **Microsoft** (MSFT), and **Dell** (DELL), among others, which are accounted as additions to U.S. GDP. The result is a net loss for the U.S. economy of $225.

The conclusion is that such transactions are ultimately unsustainable because they create an ever growing debt to China and other overseas manufacturers. The some 100 million computers set to be sold in the U.S. over the next year would incur a total trade gap loss or debt of $47 billion. The hundreds of millions of iPods would incur more scores of billions of debt for the U.S. economy. Over a decade, such losses would mount to the trillions. Such calculations are what prompt Warren Buffet and the *Barron's* bears to call the U.S. "squanderville" and predict a Great Reckoning to come.

Correctly measured from the supply side, however, the transaction appears utterly different. Ignoring the maze of contributions from at least 17 countries to the array of chips and other devices in the Dell machine, we can make a coarse calculation in accordance with accepted accounting principles. Made by a manufacturer in Taiwan, the flat screen cost $300 and the margin for the Taiwanese producer was $30. Made in China, the box and mechanics cost $100 and the margin for the Chinese manufacturer was $5. The Intel chip in this case was designed in the U.S but manufactured at TSMC in Taiwan at a margin of $5. All the overseas producers put together gained a total profit on the computer of $40, mostly for the flat screen. U.S. companies meanwhile still gained their collective profit of $245. In the accountant's ledger the import of the Dell computer earned the U.S., not a loss of $470, but a net gain of $245. And most important, we got to keep the computer, which contributes value to the economy far in excess of its cost.

This income statement account, however, is only the first step in calculating the gain to the United States. A $245 profit on a $700 sale equals a margin of 35 percent. Key to the creation of wealth is the balance sheet accounting. Capitalizing the U.S. profits of $245 at a price earnings ratio of 20 yields a capitalized value of the U.S. contribution to the Dell machine of $4,900.

"We've only just begun" is the theme of Corning's glass display business.

These estimates are all crude and miss a maze of other contributions of chips and devices on the printed circuit board of the Dell PC. There is another similar calculation for the hard disk drive, designed by **Seagate** (STX) and made in Singapore. Graphics chips, Wi-Fi devices, connectors, memories all mount up. But the general meaning of the numbers does not change. While the computer is a disaster for the trade balance, it is a huge winner for American companies and their profits.

The trade gap number is best seen as a capital surplus. As a Chinese worker, where would you want to invest your money? In the U.S., where computer firms make a margin of 35 percent or in China where computer manufacturers make perhaps 10 percent? In the U.S. where computer industry assets earn around 20 percent or in China where they earn around 1 percent?

For the Chinese and Taiwanese it is a no brainer. Assume that Chinese computer workers earn $220 on the computer, roughly half of the export price. Out of the $220, they somehow manage to save $110, which would allow them to buy about 2.2 percent of the U.S. equity with their gains. In the amazing calculus of Buffet, Faber and the other trade gap theorists, this purchase is somehow a threat to the United States that grows ever more acute as time passes.

In fact, the benefits to the U.S. compound over time. Assume that demand for computers rises 10 percent in

the U.S. and the trade gap increases commensurately. The Chinese worker still could only buy 2.2 percent of the equity, which would tend to increase also by 10 percent. But in his share purchases the Chinese worker would face competition from investors around the globe who also prefer to put their funds in the United States.

GaveKal sums up: "The countries with a well developed capital market will have an overvalued currency and a very low level of long rates. Which in turn leads to robust real estate markets and higher asset prices. We call this the dollar asset standard. Basically, diversified and safe assets in the Western world replace gold as the standard of value in the eyes of new savers in Asia, Latin America or Eastern Europe."

As a result, since 1991, when foreigners owned 11 percent of the U.S. stock market, the U.S. market, including dividends, has quadrupled. Today, after a continued expansion of the trade gap, foreigners own 17 percent of the U.S. market. By increasing their holdings over the last 14 years by 50 percent, foreigners were marginal buyers critical to the fourfold appreciation of U.S. stocks. And the result is win-win for all: U.S. consumers, U.S. workers, U.S. companies, Chinese workers, and Chinese companies all led the world in measurable gains.

Moreover, both the U.S. government and the Chinese government sharply lowered their tax rates and led the world in the expansion of government revenues. Meanwhile, the value of total private U.S. assets surged hugely upward. U.S. productivity set new records while the number of jobs soared, unemployment plunged, and disposable income and wealth accumulated.

The profit & wealth gap

During the period that foreigners were increasing their share of U.S. assets, the value of U.S. equities rose from roughly one-third of global market cap to close to one-half of global market cap. Total U.S. household assets rose from $17 trillion to $51.5 trillion and U.S. home ownership surged to new levels. Yet not even including the value of the housing, the U.S. household accumulated sufficient financial assets to become the world's largest net *creditor*.

GaveKal gives a gripping account of how this happened. The Dell/Intel/Microsoft model is at the heart of the process. Shifting global economic power to the United States was the emergence of what they call the "platform company." Dominating the new era, platform companies generate a tremendous trade gap. But retaining the high value added processes such as R&D, finance, design and marketing in the U.S. and outsourcing the more volatile and modular processes to China, India and other countries, these platform companies also generate a huge gap in profits and wealth in favor of the United States.

Qualcomm is perhaps the world's leading platform company.

Platform companies embody and propel the ascendancy of knowledge as a factor of production. Just as the physiocrats of the late eighteenth century disdained the industrial revolution on the grounds that all real wealth came from agriculture, GaveKal explains, many current economists seem to believe that all real wealth comes from industry. Thus they cannot comprehend the win-win economics of knowledge globalization and freer trade organized by these platform companies.

Nearly all the companies on our list are platform companies. **Qualcomm** (QCOM) is perhaps the world's leading platform company. Power-One aspires to be another, converting the cyclical and treacherous power-supply industry into a platform based on chip design, innovation, and intellectual property. Other platforms are EZchip, Sigma Designs, **Broadcom** (BCRM), **Ikanos** (IKAN), **Finisar** (FNSR), **Altera** (ALTR), **Texas Instruments** (TXN), and even Intel, which outsources more and more of the most volatile and routinized processes of chip production. All of them are on the right side of the most fruitful and promising transformation in the history of the world economy. While the anxieties of the world continue to mount, this is a time to be invested in the superb American platforms on the Telecosm list.

– George Gilder
February 8, 2006

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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291A MAIN STREET, GREAT BARRINGTON, MA 01230, TEL: (413) 644-2100, FAX: (413) 644-2123 • EMAIL: INFO@GILDERTECH.COM

EDITOR	TECHNOLOGY ANALYST	MANAGING EDITOR	CONTRIBUTING EDITORS	ART DIRECTION	SUBSCRIPTION DIRECTOR	CUSTOMER SERVICE
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