

Both vertically and intellectually integrated, Semitool is ready for the major transition crisis facing the entire industry as geometries drop toward 32 nano-meters.

Inside:

- Semitool's chemistry
- EZchip's upside
- Ikanos's follow through
- Intel's comeback
- NetLogic's forecast
- Power-One's issues

Milkenomics

Mary, hold the presses! Heimlich QCOM like stuck beef! Charlie, bar the door! Ebay BWNG like last year's CRT. Nick, bring on your programmable earthmoving gear. Bret, batten down Indiana! Buy and bury gold and tinned goods. Sandy, close the board! Board up BRCM like an old video store. Phila at Merrill Lynch in Winter Park, sell everything!

Reeling breathlessly across the hall into my office at the GTR's "cosm" center is our colleague Spencer Reiss of *Wired*. Through a rictus from Guernica, he gasps out at my door that Morgan Stanley's chief economist Stephen Roach has changed his mind. Roach no longer believes the sky is about to fall on Wall Street, Washington, and the Telecom list. "For the first time in ages," Roach declares he is "*optimistic on the world economy*."

Uh Oh. Sounds pretty bad, Spencer. As harrowing as a *Time* magazine cover story from the Club of Ruin or a *Fortune* recommendation of **Qualcomm** (QCOM). But if you think that's bad, truly gut wrenching are Morgan Stanley's reasons for abruptly yanking away the once reliable concrete Roach-built "wall of worry" underpinning our stock markets. In ringing rhetoric suitable to inscribe on your shield as you plunge into **EZchip** (LNOP), **Broadwing** (BWNG), **Ikanos**

(CONTINUED ON PAGE 2)

FEATURED COMPANY: Semitool (SMTL)

How can **Semitool** (SMTL), a wet chemistry and machine tool company in the boreal boondocks of Kalispell, Montana, compete in the brave new world of nanotech? Surely you can't break into twenty-first century microchip fab gear with the same company Ray Thompson, just fired from Cortek in Fullerton, California, set up in Montana in 1977 to make spin-and-spray wafer cleaners "with 98% less water use."

In those early years, he got a crucial push into high tech from a Russian refugee named Alex Gottman whom he hired right off the airplane and just before a massive heart attack. With a brain-full of flip chip bonding and automation savvy and a satchel of money from secret Soviet patents, Gottman had bolted Russia in 1978 when a "scoundrel sitting at the very desk of Shostokovich" turned down his pianist daughter from the Leningrad conservatory because she was Jewish. From his hospital bed in Fullerton, Gottman pointed Thompson to the crucial intellectual property for the next generation of chip manufacturing automation.

But it was Thompson, a superb entrepreneur with an intuitive sense of mechanics and a love of his homeland Montana, who combined Gottman's ideas with a lot of machine making prowess and built up this world-beating company, which you now have a chance to buy because of a sharp shortfall in expected earnings.

The old doubts persist, though. Spray tools and wet electroplating processes, according to the guru guff, will give way in coming years to Eric Drexler's atom-by-atom construction of devices with entangled atomic force nano-quantum tweaks and tweezers. Advanced new physics will bypass all Semitool's mastery of the messy fluids and sulphurs, solvents and slurries that currently course through wafer fabs, cleaning, stripping, flattening, photo-resist removing and surface prepping silicon for the electroplated copper interconnects pioneered by the company.

Usurping the old "wet" chemistry in coming years, so the story goes, will be an array of dry plasmas, physical vapors, electron beams, and optical trims. And the American survivors in semiconductor capital equipment will evolve into a set of global companies, from **Applied Materials** (AMAT) to **Novellus**

(NVLS), still headquartered in Silicon Valley, but with ad-hoc labs and shops around the globe, outsourcing each task to the right specialists from Bangalore and Shanghai to Penang and Taipei.

That's the conventional wisdom in the industry and the academy. It is based on an essentially reductionist view of the science which sees the progress of semiconductor miniaturization as a long climb down the ladder from chemistry and microelectronic machines (MEMS) measured in microns, altogether beyond chemical reactions and into the physics of quantum mechanics and nanotechnology. In this descent, so the gurus say, the industry will fragment into ever-narrower specializations—with photolithography and robotics focused in Japan, wafer fab and packaging in Taiwan, and some remaining advanced research and nano-engineering in the U.S., if we are lucky.

Both vertically and intellectually integrated, largely in a huge abandoned **Costco** (COST) building in Kalispell, Semitool takes a contrary view. As geometries drop toward 32 nanometers and below, all these fields—chemistry, physics, materials science, mechanics, software, simulation, robotics—converge. As they converge, Semitool is there to create the convergent cluster tools. Although the versatile Raider can accommodate and coordinate a variety of processes in some 14 chambers, wet chemistry is its forte.

The surprise is that for next generation devices, as Semitool technical V.P. Dana Scranton affirms, the industry is actually coming back to wet techniques. The use of high-energy plasmas in physical vapor deposition or cleaning and photo-resist stripping turns out to inflict damage on increasingly intricate patterns and ever more delicate device structures. Moreover, these dry processes tend to raise temperatures beyond the thermal budget and cause damage that requires further cleaning. It's not the humidity but the heat, and Semitool's mastery of wet processes enables them to beat both.

Now the entire industry is facing a major crisis of transition, from aluminum interconnects to copper interconnects, from doped polysilicon gates to metal gates, from silicon dioxide to new "high-K" dielectrics, from amorphous silicon links to super-porous "low-K" interconnects. ("K" relates conductance and temperature in materials.)

Semitool is ready for all these transitions, with an array of key technologies in its portfolio, from "powerwave" acoustical tools for new electroplating effects to computational fluid dynamic (CFD) simulation software that enables real-time fine-tuning of wafer-fab processes. For the next steps into the nanoworld with its exquisitely fragile structures, the company has been testing "supercritical" CO₂ with superfluid properties free of viscosity and surface tension.

As the industry moves from two-dimensional structures to 3D, with deep vias linking one chip to another one below it (see June 2004 GTR), back-end packaging increasingly resembles front-end processing. Semitool's electroplating technology works at both ends. A great story of American manufacturing prowess, Semitool joins our list for the long haul into the nanoworld.

At present, the company has about 20% share in the fast expanding

market of copper deposition, but it has been steadily gaining through its alliance with **Advanced Micro Devices** (AMD), which has recently brought Semitool into the advanced **Chartered** (CHRT) fab in Singapore. Copper interconnect meanwhile is rapidly gaining share of microchip starts. Having won its dispute with Novellus over intellectual property, Semitool is set to expand its share further as next-generation memories at **Micron** (MU) and **HYNIX Semiconductor** turn toward copper for speed, and high-definition video everywhere jacks up interconnect velocity past the gigabit-per-second levels where aluminum founders.

To jump-start its ascent, Semitool has been discounting Raider platforms for first-time buyers and investing in tools that will lead to new processes and long-term customer relationships, thereby sacrificing near-term margins for long-term success. The strategy is working. During the March quarter, orders came in from five first-time customers, and follow-on orders from existing customers gained momentum; two customers have now purchased 15 Raiders each. With Chartered on board, Raider platforms are now employed in each of Asia's four major foundries, including **SMI Corp.** (SMI) in China.

The result was near-record product shipments, which drove near-record March-quarter revenues of \$63.8 million, up 15% sequentially and 38% over the year-ago quarter. Resulting earnings per diluted share were \$0.11, up from breakeven last quarter and \$0.09 a year ago. (December revenues in turn had risen 16% sequentially following a year of flat quarters and decreasing earnings.) Gross margin also improved sequentially to 47.5% from 43.5%.

Jolted were traders expecting both an immediate return to the long-term gross margin of 50% and heftier earnings than the \$0.06 forecast for next quarter based on flat margins and revenue off slightly to \$60.5 million, though still 28% above last year. Trigger traders should steer clear of semiconductor capital equipment plays, which typically show lumpy earnings and revenues on the end of the whip of semiconductor cycles.

Pushing the price down as much as 22% to \$8.50 during the day following the 27 April call (40% below the February high of \$14), these traders created a buying opportunity for investors buckling up for a decade or longer ride into the sub-20 nm future. Helping to fuel the ride is a return to positive cash flow and a solid balance sheet with cash and receivables of \$84.6 million—1.2x total current liabilities of \$70.3 million and 4.2x trade accounts payable of \$20 million. Funding for the recent expansion came in part from a public offering of 3 million shares, which raised \$28m in December. The resulting 10% dilution was the first in over 5 years for this traditionally well-managed company, with industry-low employee turnover and palpably high morale.

Based on continued ascendance of its multiprocess platform and wet chemistry technology in a Moore's law world, we expect that Semitool's heyday has yet to arrive. But even a return to fiscal 2001 earnings of \$0.89 would double the stock price to \$20 at a PE of 22, a typical valuation in the semiconductor equipment industry.

— George Gilder with Charlie Burger

(CONTINUED FROM PAGE 1)

(IKAN), and **Zoran** (ZRAN), Roach writes: "The world is finally taking its medicine...or at least considering the possibility of taking its medicine."

Roach foresees exciting "multilateral talks" ahead, with the amazing International Monetary Fund called in to fix everything, and "a new resolve by the Group of Seven Nations" devoted to a wondrous program of "Global

Healing." Or perhaps in his view of the ages, it is Global Harding, with "a return to normalcy"—what Roach calls "normalization." Wow!

But Roach is a sober type and doesn't go overboard like us or Spencer. So, on second thought, please hold those stock sales, Phila. Reading on further, we find that Roach has hardly changed his mind much at all. "As always there

are still plenty of serious risks,” he confesses. In the face of the IMF and the Group of Seven, what could they be? “Especially oil, geopolitics, fiscal paralysis, and protectionism...” And that doesn’t even include *global warming*. The coming submergence of New York and Boston, as prophesied by Roach’s erstwhile gurus Al Gore and John Kerry, might aggravate some of the other risks. Oh, well.

And, in another novel insight, Roach says, “The jury is still out in America as one bubble (equities) has morphed into another (housing).” For further elaboration of such news, of course, you have to hire the senior chief bubblehead at Morgan Stanley. But we can guess that when that fabled jury returns, it may well impeach the laws of economics, or at least the “lies” of President Bush, thus prompting all Americans to sell their houses at once, perhaps to the Chinese, bringing down the sky at last on Wall Street and Main.

As is well known by all the best economists and meteorologists, the only thing still holding up the sky today, as Alan Greenspan might have put it, is an extremely delicate and fragile chemical balance of international forces and high progressive tax rates in perfect thermal equilibrium. Under these circumstances, Roach is understandably “still very concerned about the mounting pressures of *unprecedented global imbalances* [our italics]. America’s massive current account deficit—hitting an annualized \$900 billion in late 2005—puts an extraordinary financing burden on the world.” And any day now Atlas may shrug.

The world economy is not a zero sum game in which gains for one necessarily imply losses for another

Roach might have pointed out, to heighten the general effect, that \$900 billion is just \$100 billion short of *a trillion dollars*, which verges on real money and which, so the mantra goes, represents a “debt” that the U.S. will have to pay back to foreigners. For perspective, the process may even be as bad as the last panic over foreign sales of American assets in the early 1980s, when, as older readers will surely recall, our countrymen were eventually pressed all the way back to the World Bank wailing walls and IMF usurers, narrowly escaping international debtors prison at the Hague, in order to pay back those Saudi princes for vast swaths of Iowa cornfields and compensate the Japanese for Rockefeller Center. Personally I’ll never forget that dire moment when Mitsubishi threatened to take Rockefeller Center back to Tokyo and make it into another Mori Building looming over a new golf park shipped in from Pebble Beach.

Am I misremembering? Or are all the world’s economists tumbling bare moon up? With gold surging 150 percent over the last five years and commodities spiking, influential Bush advisor and Harvard panjandrum Martin Feldstein takes to the pages of *The Wall Street Journal* to call for a massive further weakening of the dollar (a “competitive currency” abroad) and a simultaneous strengthening at home (control of inflation here), as if he has never heard of globalization. In a global economy, a weakening currency is inflation. Any statistics that fail to register it are spurious. But a couple weeks earlier, Feldstein’s former student Larry Lindsay took the same stance on the op-ed pages of the *Journal*. Economic moons-up seems to be a trend.

These guys are titans of Republican tax policy but pathetic tyros in international economics. Along with all the devaluationist politicians, they are defying a basic principle of the supply side: “*You cannot change the terms of trade by changing the unit of account.*” If the monetary change is unexpected, it will have real effects on debtors and creditors with contracts denominated in the currency. Unexpected changes in the value of money create new risks for international trade and thus for economic growth and markets. Globalization requires stable currencies. But the emancipation of Chinese markets from the coils of communism, the movement of a billion Asians from farms and into the urban middle class, the liberation of skilled Chinese labor into the world economy, the rise of China’s manufacturing prowess and its turbulent and volatile growth are real phenomena rather than merely monetary figments. Equally real is the global ganglion of fiber optic lines and wireless devices and Internet protocols linking all the world’s countries, companies and markets. Even if you wanted to, you could not countervail the tsunami of China with a Canute consensus of currency adjustments.

A trillion dollars of current account deficit over a year is trivial beside the some two and a half trillion dollars traded *daily* around the world or beside the ever-growing \$51.5 trillion of American household assets. Although everyone now pretends to believe devoutly in globalization, U.S. demand-side economists are still trapped on the beaches of a 19th century mindset of separate national economies trading with one another as aggregate entities and settling accounts in gold over treacherous seas.

For the last two months, I have been shuttling back and forth across the country trying to figure out what is going on out there to drive everyone crazy. The only answer I get is gasoline at \$3. It’s shocking to people used to paying a nominal \$2 but not exceptionally high by historical standards or in proportion to prevailing incomes and assets or adjusted by the sinking dollar or compared to the diminishing share of the economy comprised by energy. But the politicians are all reading polls that say the people blame oil companies for high prices and associate Republicans with big oil. After fifty years of observing the political scene, though, my most

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)
PMC-Sierra	(PMCS)
Power-One	(PWER)
Qualcomm	(QCOM)
Semiconductor Manufacturing International	(SMI)
Semitools	(SMTL)*
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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EZchip (LNOP)

PARADIGM PLAY: A GENERATION AHEAD IN NET PROCESSORS

MAY 9: 10.06; 52-WEEK RANGE: 4.56 – 10.84; MARKET CAP: 106.91M

If you can take your lumps this year, your investment in EZchip should straighten out and up beginning next year.

Of EZ's more than 85 design wins, which include 35 wins for the second-generation NP-1c and over 50 wins for the third-generation NP-2, only 5 NP-1c products have begun initial production based on sales into a few metro Ethernet deployments. During initial production, an EZ customer may order several thousand chips in a two-month sequence and then wait perhaps half a year for more contract wins. (Hence the lumpiness in EZ sales.) Ten other NP-1c designs have been completed, and EZ customers with these products have each ordered a couple hundred chips to build prototypes for testing by prospective customers.

Some of the sales for the 15 completed NP-1c designs were likely reflected in first quarter revenue of \$1.4m, up 12% sequentially but down 23% from the a year ago. The remaining 20 NP-1c products are expected to enter prototype builds during the remainder of this year, adding to the lumpiness.

EZchip of the mumps should be the NP-2 with its 50-plus (and climbing) design wins. Since about an order of magnitude more NP-2 chips are used per product compared to NP-1c, we expect prototype orders in the several thousands and initial production orders in the several tens of thousands based on the NP-1c order rates. When products using NP-2 chips and to a lesser extent products using NP-1c chips go beyond initial production and become hits in their markets, EZ soars and the lumps dissolve. When does this happen? We don't know for sure, and there's still the possibility that none of EZ's customers will see their products score big; that's the downside risk to your EZ investment.

But the likelihood of that happening is rapidly diminishing. The first NP-2 customers are expected to enter prototype production in a couple of months, and EZ expects revenue from NP-2 to begin in earnest next year. NP-2 comes in three models for different speeds and features, extending its market well-beyond that of NP-1c. Whereas NP-1c mainly targets the usual one or two services cards per chassis, NP-2 chips go into the typical ten or more line cards per chassis and also into stand-alone pizza box applications.

The pipeline is reflecting a huge and building potential for NP-2 chips according to EZ, with demand coming mostly for line cards going into the latest 10 Gbps metro Ethernet equipment. Out of the five top systems houses, EZ has "a lot" of design wins with three and "some" with a fourth through another company. The Israeli's are confident they will win all five eventually. With the top five on your side, how can you lose?

EZ chips were designed from the outset to accommodate all seven layers. The indispensable wire-speed packet processing comes first, together with traffic management, but the task optimized processors spin more densely as geometries shrink. Over time, EZ chips will be able to perform more and more of the functions currently done by specialized co-processors

and ASICs. At some point over the next five years, single-chip systems will prevail and EZ will be there.

Signs of meaningful activity were apparent in the first quarter. Expenses ticked up a bit as NP-2 completed its production tape-out and as engineers worked closely with customers designing the swelling tide of future products. Inventory, which increased 14% sequentially, should continue to build this year in anticipation of next year's crescendo of orders. To see it through until then, EZ carries no long-term debt, and cash and receivables of \$19.2m exceed current liabilities by over 6x or \$16.1m, down just a quarter from \$21.4m over the past year.

The company continues to estimate break-even revenues at about \$5m per quarter. Based on management's margin guidance and its rough estimate of overhead, we ballpark some \$16m of net income on \$60m of revenue, which is just a little more than 10x EZ's current trailing 12-month revenues. Adjusting diluted shares outstanding to reflect LanOptics's 60.4% ownership of EZchip, \$60m of yearly sales sends the stock price to \$24 at a PE multiple of 30. A more aggressive PE multiple of 50 supports a price of \$40, with room for plenty of upside if Cisco joins the party and some NP-2 products become big winners.

Ikanos (IKAN)

PARADIGM PLAY: VDSL PIONEER

MAY 9: 17.91; 52-WEEK RANGE: 9.36 – 24.97; MARKET CAP: 471.03M

Fabless VDSL pioneer Ikanos reports 10m ports shipped through the first quarter of this year compared to a few hundred thousand ports from all competitors combined, giving the company an early advantage in rolling out its next-generation VDSL2 products. But competitors are gaining steam, which is still good for Ikanos because that gives major carriers the confidence that the industry is ready to support serious VDSL2 deployments, which CEO Rajesh Vashist believes will begin later this year or early in 2007.

Last quarter, Ikanos completed a second offering of common stock, which provided another \$47.5m in cash, in part to fund the purchase of ADI's gateway products for \$30m. Though the acquisition was not completed until half-way through the quarter, the new gateway products contributed to 10% of total revenue and half of the 26% sequential sales increase. They also helped to increase Ikanos's geographic diversification outside of Japan, now down to 60% of total revenue. Korea follows with 20% and Europe with 10%.

In preparation for initial deployments of VDSL2, systems houses may have been building inventories over the past year. Thus, Ikanos expects its sales growth to moderate a bit over the next few quarters. In addition, expenses will increase this quarter due to initial production costs for new chipsets with high revenue potential beginning later this year. Earnings from operations, excluding options expensing and noncash acquisition costs, declined from \$0.20 per share in December to \$0.14 in March, and will likely fall to \$0.06 in June based on our interpretation of company guidance. These trends appear to be giving Wall Street some heartburn; recently, investors have knocked as much as a third off the stock's high of \$24.97

Online Bonus Material: For additional analysis on Advanced Micro Devices (AMD), Broadcom (BRCM), Broadwing (BWNG), Corning (GLW), PMC-Sierra (PMCS), Sigma Designs (SIGM), Texas Instruments (TXN), and Zoran (ZRAN) logon with your GTR subscriber ID at www.Gildertech.com.

reached in mid-February.

If Ikanos can follow through on its long-term model of 15% operating margin and a 20% tax rate for 2008, investors have a good shot at a double in two years from the recent share price of \$16.40. Even if the company loses a significant portion of market share to competition and captures just a bit more than half of the \$504m market of for VDSL silicon in 2008 (as forecast by the Linley Group), Ikanos would earn of price of \$32.80 based on a growth PE of 30.

Intel (INTC)

PARADIGM PLAY: MICROPROCESSOR KING MOVES ONTO NETWORK

MAY 9: 10.06; 52-WEEK RANGE: 4.56 – 10.84; MARKET CAP: 106.91M

“Kudos to AMD for making Intel a buy.”

That’s how I ended my January analysis on Intel, when the stock price was over \$22. Having slipped under \$20 recently, it’s worth repeating. Despite the dismal quarterly call last month, the market nudged the stock up about a percent the morning after. Meaning, perhaps, that all the dismality had been baked into the price.

Or ... maybe investors believe Intel’s outlook for the second half of the year, which has revenue up 18.6% over the first half. That would require a strong 15% increase in each of the last two quarters, coming off the second quarter bottom.

Intel’s future depends largely on the success of its new chip architecture to be launched later this year, when the chip giant expects to lead in microprocessor performance-per-watt for mobile products, desktops, and servers. And work continues apace to bring 45-nm chips to market in 2007. Intel believes its 45-nm technology will double transmission density, increase switching speeds by 20%, and reduce power by 30%.

At the recent price of \$19.58, INTC trades at just over 19x our estimated EPS of \$1.02 for this year based on the mid-point of company forecasts. That’s a 27% cut in earnings from last year’s \$1.40. To gain that back next year Intel will need to increase earnings by about a third. If they do, a PE of 20 would boost the stock price to \$28.

Unless they’re exaggerating about their next-generation technology and road map, they’ll be back. But inspiring me with less confidence than I had three months ago is Andy Bryant, who propounded on the call: “This is a year for resolute determination. We are determined to compete now, determined to deliver better products with superior manufacturing capabilities, and determined to control spending.” Sounds desperate. But at least they’re determined to compete now, if they weren’t so inclined to before.

NetLogic (NETL)

PARADIGM PLAY: CUSTOM LAYER 3 AND 4 PROCESSORS

MAY 9: 37.54; 52-WEEK RANGE: 12.79 – 45.03; MARKET CAP: 727.83M

During the first quarter, NetLogic’s revenue rose 10% sequentially to \$23.3m despite a decrease of almost \$1m in sales to Cisco, accounting for 57% of total revenues compared to 67% in last quarter. Volumes still increased to Cisco, which benefited from a 5% price cut. Excluding noncash and acquisitions related costs, net income increased 21% sequen-

tially, boosting EPS 15% to \$0.31. Cash and receivables net book liabilities grew 45% to \$63.6m.

The company continues to build for the future, having won a record number of designs during the quarter, including several for second-generation NL6000, which doubles performance and halves power over the NL5000 for layer 3/4 processing. NetLogic enhanced its NetLite line that targets entry-level switches, routers, and access equipment ... acquired Cypress’s network search engine products ... and began sampling its layer-7 series for full-content processing at 10 Gbps. All these advances expand NetLogic’s market beyond networking and communications into computing and security.

Based on the most recent incremental margin, sales guidance, and added shares from the Cypress acquisition, we forecast EPS of \$0.34 this quarter, equivalent to an annual run-rate of \$1.36—which NETL could achieve simply by raising revenue enough to offset tax creep and potential decreases in gross margin (pressured by ascendance of lower-margin NetLite and Cypress lines). That seems quite doable, making the forward PE of 28 at the recent price of \$38 look attractive. After all, earnings of \$1.36 would be up 45% over the prior twelve months.

But another 28% ramp in earnings to \$1.74 after next March could prove challenging. At a PE of 28, that would bring the price to \$48.72. NETL could reach that price this year if signs point to continued growth. However, sales expansion next year depends largely on how quickly NetLite penetrates down market and on how rapidly demand for 10 Gbps layer-7 processing rises. The layer-7 market is nascent and could delay for a few quarters, and entry-level markets are already served by established competitors. On the high end, where NetLogic stands almost alone, competition will surely intensify long-term. But with design-ins tending to be sticky and design cycles long, we are more concerned with taxes.

Recently hovering within a few percent of zero, the tax rate for a prosperous NetLogic could reach 35% next year. Such a rate would have required the company to increase sales 44% during the current quarter to \$33.5m in order to achieve our hoped-for \$0.34 earnings; NETL’s forecast for 9% growth to sales of \$25.4m would have yielded an EPS of just \$0.22 for a run-rate of \$0.88 and forward PE of 43.

In January we didn’t think the stock was worth the risk at \$37.35. Since then it ascended to \$45, only to drop quickly back to \$38 after last month’s upbeat call. Looking through the end of this year, we continue to be cautious.

Power-One (PWER)

PARADIGM PLAY: DIGITAL POWER MANAGEMENT CHIPS

MAY 9: 37.54; 52-WEEK RANGE: 12.79 – 45.03; MARKET CAP: 727.83M

During the most recent quarter, bookings increased 30% sequentially to \$79.4m, the largest in 5 years. The company continues to add design wins in its traditional power systems business while building on its Z-One digital-power wins, which had neared 50 by the end of last year and span applications from wireless, networking, telecom, and test equipment to aerospace, aviation, and computing.

It’s inevitable. Just as Moore’s law advances made certain the cellphone industry’s conversion to digital, so will it precipitate a digital revolution in power management for medium and complex circuit boards, still overwhelmingly analog. Using ever shrinking digital technology, engineers can design power modules in 10% of the time with 90% fewer components compared to analog. And changes can be made on the fly, avoiding costly reengineering and re-layout.

PWER understood the digital trend early on and remains the only company with a complete digital-power solution. Management continues to expect revenue to accelerate this year based on swelling design wins, with the potential to surpass the 10% to 15% growth forecasted earlier in the year. But can these guys cash in?

Losses early last year were blamed on inventory write-downs and restructuring charges as Power moved production to lower-cost regions. The move also hurt sales, which suffered from inventory shortfalls resulting from the disruption. We were told the restructuring was completed last summer and that quarterly breakeven had fallen to \$68m. But Wall St. was skeptical. Management promised profitability last year following an earlier restructuring, yet the company continued to lose money as it had every year since 2000.

Their skepticism proved prescient. Trailing 12-month revenues have fallen consistently from a peak of \$280m at the end of 2004 to \$260m last quarter, when Power reported a loss of \$0.06 per share on revenues of \$64.6m. Among the new challenges are “supply chain issues” at a contract manufacturer, an inventory write-off, bad debt expense, higher taxes in Europe, and larger legal fees likely linked to lawsuits with Artesyn and Silicon Labs. Earnings were hit by high fees resulting from Power’s attempts to fill customer orders during the supply shortage. Expect those higher fees again this quarter, along with additional pressure on earnings from higher raw material prices and new products enter early stages of production.

The forecast during the February call was for breakeven during the first quarter. Now we are to expect breakeven or a little better in the second quarter, but on higher sales of \$72m to \$77m, due to the “issues” being resolved. The technology prospects for this company are stellar, but some skepticism seems appropriate until they demonstrate they are no longer operationally challenged.

And don’t expect any rewards until next year. Even if the company still manages to increase sales by 15% this year as hoped, the recent price of \$7.23 yields a forward price-to-sales multiple of 2x. Until management shows it can execute, the historic multiple of 2.75x, which would bring the near-term price to \$9.60, is undeserved.

Semitool (SMTL)

PARADIGM PLAY: WET ELECTROPLATING TECHNOLOGY

MAY 9: 37.54; 52-WEEK RANGE: 12.79 – 45.03; MARKET CAP: 727.83M

Added to the list this month.

sure conclusion is that “leaders” who follow public opinion polls soon earn the contempt of the public.

Perhaps people are all spooked by debt. Inspired by Warren Buffet’s memorable dismissal of spendthrift America as “Squanderville,” doomster pundits point portentously to the “twin towers” of debt: record trade (\$900B) and budget deficits (a projected \$448B). The Squanderville chorus prophesies the same debt doom disasters they and their cohorts predicted last year and the year before that and so on back over the centuries in the annals of finance. In a global economy, shifts in the balance among goods, assets, and bonds are utterly predictable and innocuous. A trade deficit between the U.S. and China should arouse no more alarm than a trade deficit between California and Nevada.

Nonetheless, perhaps I am missing something. Perhaps “it is different this time.” So to get a perspective on debt I decided to consult the world’s leading expert on the subject, Michael Milken. Amid the economic bubbly and guru goulash and mad politics and media-borne flues and immigration snits and *Time* magazine Weather Channel panics, I headed west for the Milken Institute’s annual bash at the Beverley Hilton Hotel in Los Angeles.

I had not visited the place since the glory years of the early 1980s when the crested capital of Milken’s \$200 billion junk bond empire was funding most of the key companies that laid the foundations for a new era of networks. That became the Telecosm and it was initially financed chiefly by debt. At the time, such firms as MCI, TCI, Newscorp, McCaw Cellular, **Cablevision Systems** (CVC), **Viacom** (VIA-B), Turner Broadcasting, Warner Communications, and even secondary beneficiaries **Corning** (GLW) and **Disney** (DIS) were widely seen as Ponzi schemes poised and propped up for quick deal-making profits by the Machiavellian vamp from Wilshire Boulevard and Drexel Burnham. But among various permutations of ownership, wafted by the relatively gentle but persistent inflationary winds of the late 1980s and early 1990s, these heavily indebted companies grew in market cap from less than \$100 billion to around a trillion and fueled the communications infrastructures for an information age.

After five years of federal harassment of the high yield security market that he pioneered, Milken went to jail in 1991 on a tidal wave of journalistic and judicial blindness to what he was doing, aggravated by the ulcerating grip of envy at his success in doing it. Meanwhile, most of the successor Telecosm companies of the 1990s that followed Milken’s 1980s debt model (but not his prescient advice) prepared to go deep into debt to consummate the Internet, which was then doubling its traffic every month or two. Led by former Milken protégé Gary Winnick, Global Crossing was the spearhead. Led by daredevil debtor Bernie Ebbers, Worldcom bought UUNet and became the leading domestic Internet services vendor.

Global Crossing, Worldcom, and their ilk went bonkers and bankrupt when the nineties ended not with a con-

tinued drift of debtor friendly inflation but with a fierce unexpected crunch of deflation, as the dollar surged some 30 percent in four years against all other currencies, commodities and gold. By increasing the burden of the payback and reducing cash flow, deflation indiscriminately punishes debtors. From the financial crisis in Asia to the collapse of thousands of American corporations, the U.S. deflation after 1996 punished all ventures with large debts denominated in dollars. The largest debtors of the period, though, tended to be protagonists or dependents of the massive rollout in new Internet infrastructure.

Deep in jail at the time, advising lucky inmates on their math problems, Milken was not around to give advice to his former followers on the outside. When he emerged from jail more than two years later, he found himself nearly bankrupt from \$1.2 billion of fines and from the federally enforced crash of junk bond values. (Congress forbade any regulated companies from buying them, forced Savings & Loans to give them up, and then congratulated itself for foresight as the securities tanked.) Contrary to the predictions of the politicians and their consultants, though, junk bonds soon revived and became a staple of American finance.

Banned from financial markets and other uses of his amazing talent, Milken did find time to address the 1997 Gilder/Forbes Telecosm conference, where he warned that while the 1980s were the era of debt finance, the 1990s were an era of equities. As Greenspan issued alarms of “irrational exuberance,” Milken declared that an eightfold rise since 1985 in corporate price-to-book ratios signified not a vast overvaluation of stocks but the increasing role of intellectual and human capital in U.S. companies. (*Business Week* made a similar discovery in a cover story by Michael Mandel a couple months ago.) Milken in 1997 saw the change as a sign that equities were still undervalued, but that debt risks had risen.

Arrayed before him, the many bravely indebted entrepreneurs of the Telecosm—and the investors in these Telecosm debtors, and their advisors at the *GTR*—listened attentively to Milken but did not apply his insight to their own investments. No one asked the question: If the late nineties were to be an era unfavorable to debt, what would be the fate of companies such as Global Crossing, Worldcom, Globalstar, and even Cincinnati Bell, that were heavily funded by debt? And what would be the fate of their equities and the stocks of their equipment suppliers in the Telecosm?

Meanwhile, Milken was reassembling the shards of his own career. Banished from the fields of finance that he had earlier mastered, he would have to find new work. Paraphrasing his lawyers, I sum up the conversation: “Well, what can I do?” he inquired of his probation officers, “How about education? I’m interested in education.” Sure. You can do education. How about prostate cancer, can I do that? Sure.

In one of the greatest second acts in the history of enterprise, Milken within seven years beat his own pros-

tate cancer and accelerated research across the field. Then he launched a venture called FastCures that is addressing the other cancers as well, and created an education empire under the aegis of Knowledge Universe nearly as lucrative as his junk bond empire of the 1980s. Including such companies as **Leapfrog** (LF) for educational toys, **CBT-Group** for vocational training, Cardean University for business education, and **K-12**—watch for it, soon to go public in online courseware—Milken actually enhanced his reputation after leaving prison to a point beyond his renown as a high yield financier. His one-time nemesis Rudy Giuliani contracted prostate cancer and became a friend. No one any longer speaks of Warner, Newscorp, digital cellular and long distance fiber optics as Ponzi schemes, but few have apologized to Milken for their earlier misjudgments.

The highlight of the Beverley Hills conference last month was a debate over the future of equities between Milken and Wharton School Professor Jeremy Siegel. You will remember Siegel as the guy who issued the great sell signal on Telecom stocks on *The Wall Street Journal* op-ed page on March 14, 2000, when the ones so unfortunate as to have earnings at all sported PE ratios in the 100s.

According to Siegel today, the crucial issues of economics in this epoch are demographic. “Who will produce the goods?” and “Who will buy the assets?” Usurping Roach’s role, Siegel contends that the coming retirement of baby boomers will crash the asset markets. Historically, Siegel says, retirees always try to exchange their assets for goods. The inexorable force of American demographics dictates that as the huge bulge of baby boomers retires, sellers will massively outnumber buyers.

Although Siegel acknowledged that theoretically the rest of the world could both produce the goods and buy the assets of these American codgers, this solution seems improbable at a time of increasing protectionism and xenophobia in the U.S. At a time when foreigners own just 17 percent of American equities, the U.S. is now unwilling to sell **Unical**, a mid-sized oil company to China’s **CNOOC** (CEO) and Congress is launching new bureaucracies to balk other sales of assets to foreigners. Under these circumstances, how will the nation brook a drastic expansion of foreign ownership?

Broadwing’s costs are below all its rivals and its balance sheet sports some \$106 million in net cash

Some people pretend that increasing the retirement age will solve the problem. But, says Siegel, the retirement age is going down, not up. In Europe it is 55 and people threaten

a general strike if it is raised. In the U.S., polls say people want to retire at 62, or earlier if possible. To mitigate the baby boom impact on equities, the retirement age would have to move to 73. Some point to immigration as the savior. But current pressures are against further immigration and, says Siegel, it would take 500 million immigrants to support a retirement age of 62. People say that productivity gains will relieve the pressure. But even a 70 percent increase in the productivity growth rate, to 3.7 percent per year, would scarcely make a dent. The only thing that will make a dent, says Siegel, is a 40 percent to 50 percent drop in asset prices.

Milken dismissed all these fears. “*Don’t read the headlines,*” he said, “*follow the money.*” He pointed to the tumultuous rise of hedge funds (up threefold in five years), and to the engorgement of foreign money in investment houses such as **Carlisle**, **Apollo**, and **KKR**. For the 16 years, he pointed out, the largest stockholder in **Citibank** lived in Saudi Arabia.

Three great forces will countervail the crash of equities: Jobs will change as much as they changed since the flight of Americans from agriculture early in the last century. While employment in agriculture plunged some 98 percent, the U.S. economy added a net 62 million jobs. Technology will change as much as it has in the last three decades, which produced an iPod in 2006 with 500 million times more memory than an **IBM** (IBM) computer of 1976. And health will change. People will live decades longer and stay healthier and work from home in the information economy. Cancer currently cuts natural life spans by some 16 years. Cancer is being tamed by technology.

Siegel’s two questions will be answered the same way as ever: Young people around the world will produce the goods; young people will generate new savings as the Chinese are doing today; and old people will sell assets to buy goods as the Japanese are now doing. As Siegel pointed out, this pattern is already evident in the United States, with the entire state of Florida selling assets to the rest of the country in exchange for its goods while the stock markets continue to rise.

This is the global solution. “Economically, countries are fading away,” Milken said. “Where do you want to live? You can sell assets here and move there.” In the end, Milken won the debate. Siegel readily granted that if the U.S. does not shut out the rest of the world, high asset prices can be supported. Siegel is a pessimist, he granted, “only if we shut out the rest of the world.”

Today, what could be more natural than the Chinese, still young, selling goods to the aging population of the U.S. in exchange for intellectual property and other assets. Such an arrangement, though, say Feldstein, Roach, Lindsay, Buffet, et al, is “unsustainable” because the U.S. would end up with no assets to sell. But the world economy is not a zero sum game in which gains for one necessarily imply losses for another. Far from losing assets in the process, the

U.S. is still creating new assets faster than it is selling them to foreigners. Since 1991, the foreign share of U.S. equities rose from 11 percent to 17 percent, but the value of U.S. equities rose fourfold, as the increase in U.S. asset value dwarfed the absolute rise in foreign holdings. The profits of U.S. companies are rising ten times faster than the profits of Chinese manufacturers. As Milken said, “We have problems—education, for example—but worrying about who the buyers will be is not one of them.”

Ikanos is still a buy; Sigma Designs still beckons; EZchip remains attractive; Broadwing is worth a gander; NetLogic is swooping into range

So what should you be buying? One guy who got it right according to the Milken plan was David Huber, who built up **Ciena** (CIEN) and then Corvis on equity in the deflationary late 1990s and engineered an all-optical network for Cincinnati Bell, which became **Broadwing** (BWNG). Then early in the new millennium, Huber went into debt to buy the network back in 2003 as a new inflation dawned. After paying back the debt, Broadwing now commands the world’s only continental all-optical network. Its costs are below all its rivals and its balance sheet sports some \$106 million in net cash (about 12 percent of sales). By contrast, wholesale carrier **Level 3** (LVLT) is laden with almost \$6 billion of net debt (125 percent of sales). Yet Broadwing trades at an enterprise value (market cap adjusted for net cash/debt) of only 1.25 times sales, a little more than half of Level 3’s 2.1 times.

Excluding options expensing and other noncash charges, Broadwing earned \$2.3 million or \$0.03 per diluted share on operations for the first time last quarter. To cover capital expenditures required to maintain infrastructure and light up new customers, Broadwing needs to increase operating

margins another 5–6 percent. Thanks to the high-margin all-optical backhaul network and significant leverage built into administrative and sales operations, CFO Lynn Anderson reports incremental operating margins of 40–60 percent across all products and customers. Thus another 12 percent or so of additional revenue should be enough to generate surplus cash flows and take Broadwing home.

To help Broadwing down the final 90 feet, Anderson is counting on a swelling tide of contracts with large enterprises for his new converged services offerings, rising prices for high-speed products, and slowing declines in rates for low-bandwidth services and long-distance voice. To load yet more activity onto the network, Broadwing is looking at alternative sources of access including DSL (digital subscriber line), cable, and WiMax, and is actively seeking to acquire more facilities and customers. Toward that end, Anderson is wisely going to the capital markets while BWNG’s stock price is up (almost 4 times from its lowest point last year) and interest rates are favorable.

His latest private placement of \$150 million in 20-year convertible debentures locks in a 3.125 percent interest rate and a convert price of \$16.60 or 25 percent above the latest closing price. With a rapidly depreciating dollar (reflected in a \$700 per ounce and rising gold price) portending rising interest rates, that’s a good deal for Broadwing and for investors in the company’s common shares. When Broadwing comes home, as early as next year, an enterprise valuation of 2 or 2.5 times sales would be conservative, doubling the stock price to \$24 to \$30.

Watch for companies on the Telecom list to dip. It happens from time to time to the best of them. **Ikanos** (IKAN) sunk recently from \$22 to \$15 and it is still a buy near \$17. Sigma Designs dipped to \$13 and it still beckons at \$14 today. **EZchip** (LNOP) remains attractive at \$10. Broadwing, for all its foibles, remains worth a gander for its role in the global ganglion. **NetLogic** (NETL) is swooping into range. Watch for further dips.

— George Gilder, May 9, 2006

Got Questions?

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

GILDER TECHNOLOGY REPORT

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