

leading edge

What's hot
in the
design
community

Edited by
Fran Granville



“See” change
“Every now and then,
you recognize that a
product is so obviously
superior to what came
before it, the writing
is on the wall in
block letters big
enough for Mr Magoo
to read.”

—David Pogue,
on the DVD's eventual
replacement of the VCR,
in *The New York Times*,
Feb 5, 2004

Tiny reed switch is hard to see, easy to use

By Bill Schweber

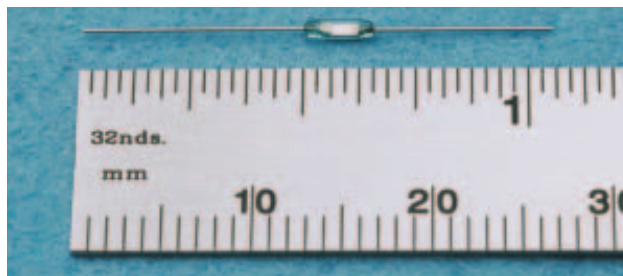
BELL LABS AND WESTERN ELECTRIC matured and mass-produced the venerable reed switch for use in AT&T central-office switching. It may have lost that role, but designers of specialty

applications still prefer it for its extraordinary reliability and hermetic sealing, which keeps dirt and corrosives out and arcing in. Hermetic Switch claims that its HSR-0025 reed switch, which is half the size of its HSR-003 predecessor, is the smallest in the industry. Measuring $4.06 \times 1.22 \times 0.89$ mm, this switch works in internally fitted medical devices, medical instrumentation, and aerospace and industrial applications.

The switch leads measure just 0.25 mm in diameter, contributing to the extreme

sensitivity of the switch; it requires two to 15 ATs (ampere-turns) to activate, depending on the version. Its Form A contacts handle 30V ac/dc, 0.01 A, and 0.25W maximum power. Prices range from \$1.65 to \$3.10 (1000).

► **Hermetic Switch Inc**,
1-405-224-4046, www.hermeticswitch.com.

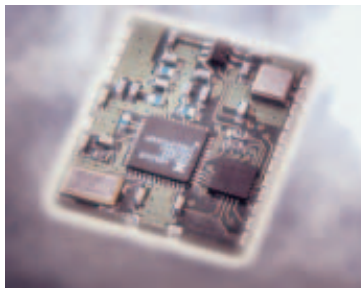


Easy to miss, and that quality is good: The HSR-0025 reed switch measures just 4 mm long and is sensitive, as well.

\$20 module replaces RS-232 wiring

A NEW WIRELESS MODULE from Radiotronics combines a spread-spectrum transceiver with a protocol controller for transparent wire-replacement applications. The Wi.232 replaces RS-232/422/485 wiring and supports low-data-rate, low-power embedded-wireless applications, such as automated meter reading, industrial automation, home automation, medical instrumentation, and RFID. Initially available in a 915-MHz version, the module employs a true MAC (media-access-control) layer with no restrictions on addressing schemes and provides support for higher level protocols, including TCP/IP.

You can use the Wi.232 in point-to-point, point-to-multipoint, and multipoint-to-multipoint applications. Multiple modules can communicate on the same channel because of the



A new, low-cost, low-power, spread-spectrum transceiver from Radiotronics enables wireless RS-232/422/485 applications.

built-in CSMA (carrier-sense-multiple-access) protocol. In its high-power mode, the module's transmitting power is as high as 11 dBm, and the maximum RF data rate is 152.34 kbps; the device also supports 36 channels. With proper antennas, a pair of Wi.232 modules can communicate over distances of 500 to 800 feet indoors and 1500 to 2500 feet outdoors.

The module is available in a pick-and-place-compatible surface-mount package measuring $0.8 \times 0.97 \times 0.08$ in. and sells for less than \$20 (production quantities). An optional development kit is also available

that includes RS-232 and USB interfaces, battery and wall power supplies, debugging ports and connectors, and a prototyping area.—by Warren Webb

► **Radiotronics Inc**, 1-405-794-7730, www.radiotronics.com.

Embed logic-analysis probes in your Xilinx FPGA

OF ALL THE logic-analysis products that Agilent announced on March 1, the B4655A FPGA dynamic probe logic-analysis application appears to hold the greatest promise of revolutionizing the way you work. The product, which carries an introductory price of \$995 through the rest of 2004, allows you to embed logic-analysis probes within designs that you implement in Xilinx FPGAs. You can dynamically switch each probe among as many as 64 internal probe points, enabling an FPGA design that allocates, say, five pins to probing to reveal the activity at 320 internal nodes.

Moreover, automatic mapping of signal names from your design to the probe points greatly speeds logic-analyzer setup and eliminates confusion that can attend the use of tools that assign multiple names to the same signals or nodes. In addition, you can view the probe points in either state- or timing-analysis modes. Furthermore, a two-times data-compression option maximizes the number of pins that you can use for the design.

Agilent's announcement also includes a new family of three- and six-slot modular

logic analyzers priced from \$12,000 to \$15,000. You can connect members of the 16900 series to a 1-Gbps LAN and upload captured information to a separate host computer for rapid analysis while you acquire additional data.

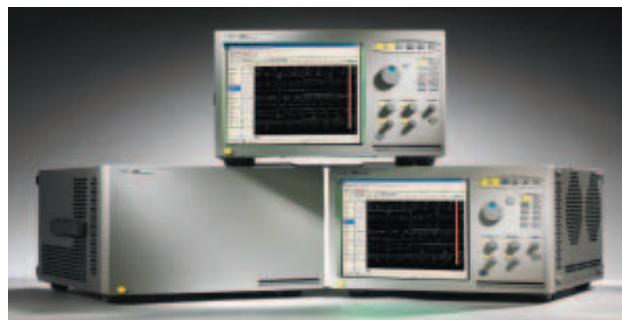
Each of Agilent's three new logic-analyzer acquisition modules provides 4-GHz timing (250-psec sampling) simultaneously with state measurements, eliminating the need to double-probe. The 68-channel 16950A (from \$18,500) offers 600-MHz state speed; the 102-channel 16910A (from \$12,000) and 68-channel 16911A (from \$9,000) offer state speeds to 450 MHz. These 16900 series logic-analyzer modules allow independent installation of acquisition-memory-depth

and state-speed upgrades, which allow development teams to purchase just what they need and upgrade either memory depth or state speed as their needs evolve.

Agilent also announced several logic-analyzer probing products. The 17-channel, single-ended, connectorless, E5396A and E5398A soft-touch probes are compatible with all Agilent logic analyzers that use 40- and 90-pin connectors, respectively. Both probes use spring-pin technology, which requires no special cleaning or probe-pad surface finishes to make a reliable connection. The price of each unit is \$1900.

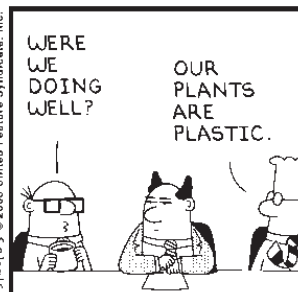
—by Dan Strassberg

► **Agilent Technologies**, 1-800-452-4844, www.agilent.com/go/news.



The 16900 mainframes come in three flavors that accommodate three to six modules. One of the mainframes has a blank front panel for applications in which a separate PC provides the user interface.

DILBERT By Scott Adams



► According to the Consumer Electronics Association, vendors last year sold some 3.1 million prepackaged home-theater systems, which included five speakers, a subwoofer, and an audio-video receiver, nearly triple the number sold in 2000.

KEEP AN EYE ON KEEPING AN EYE ON POWER

It's the eternal question: How do you test the tester? With the Model 8100 from Rotek Instrument Corp, you get a precision source of ac voltage,



Test your power tester with the Rotek Model 8100 precision, fully controllable ac source.

current, and phase angle for calibrating watt, VAR (volt-ampere-reactive), watt-hour, voltage, amp, and phase-angle meters. Using this system, you need not rely on a patchwork of sources, as well as the risk inherent in any line-voltage setups.

The unit sources voltages to 700V and currents to 50A. (Currents as high as 220A are optional.) It also provides phase angles of -180 to $+180^\circ$ at frequencies of 16 Hz to 1 kHz. Stated power accuracy is 100 ppm, and you can set it up to add harmonics, interharmonics, sags, swells, interruptions, and other power-related characteristics, such as flicker and notching. The \$24,000 unit includes a TFT (thin-film-transistor) color display and menu-driven front panel.—by Bill Schweber

► **Rotek Instrument Corp**, 1-781-899-4611, www.rotek.com.

Quarter-brick supply delivers big power, fast response

VICOR IS EXPANDING its extensive power-supply line with a family of IBC (intermediate-bus-converter) modules in quarter-brick format that incorporate BCMs (bus-converter modules) and

offer high efficiency, low noise, and fast response. You can use these pin-compatible, industry-standard-format devices as single modules for ratings as high as 300W or parallel them to double the output. Designed for 38 to 55V-dc input, the isolated modules are available with nominal outputs in nine distinct voltage values from 3 to 48V dc.

The vendor says that these modules offer efficiency of at least 95% for the 3V output to better than 97% for the 48V output, partially a result of their zero-current/zero-voltage switching architecture.

You can get full power without a heat sink; cooling requirement is just 200 ft/minute (60m/minute) with 55°C airflow. Output current



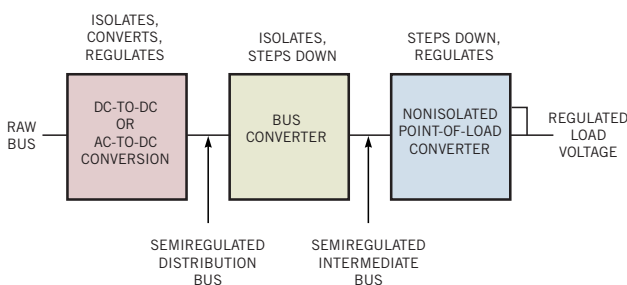
ranges to 100A, so the package uses a special pin design to handle the high current level and IR drop.

The 3.5-MHz switching frequency reduces the size of all reactive components, and the supply needs no output inductor for its serial-path energy storage; further, the requisite transformer is a low-Q, low-cost unit. Despite this

operating frequency, noise is just 12 mV. Response to a 100% step change in load is under 1 msec for overall supply-rail integrity. Vicor has priced these IBC modules at about 11 cents per watt (OEM quantities).

—by Bill Schweber

► **Vicor Corp**, 1-800-735-6200, www.vicorpower.com.



Using bus-converter modules in a quarter-brick format, Vicor's family of isolated intermediate-bus converters accept 38 to 55V dc and deliver 3 to 48V dc with high efficiency, low noise, and fast response at up to 50 or 100A load current in single or parallel configuration, respectively (left). You use these as part of a complete power-line-to-final-regulated-load-voltage path in a point-of-load topology (right).

Consortium unveils HyperTransport 2.0

THE HYPERTRANSPORT TECHNOLOGY Consortium has released Version 2.0 of the HyperTransport Technology I/O Link Specification, which introduces 2 billion-, 2.4 billion-, and 2.8 billion-transfer/sec speed grades using dual-data-rate clocks at 1, 1.2, and 1.4 GHz for a maximum aggregate bandwidth of 22.4 Gbps. The spec also supports mapping to the emerging PCI Express standard. The electrical specification supporting the new clock rates is backward-compatible with previous versions of the HyperTransport specification.

The primary change is the addition of de-emphasis, which introduces a lower signal-output level. The first bit sent after a transition transmits at a slightly higher level than bits that maintain the state, producing an effect similar to adding a highpass filter to the output to help compensate for the poor frequency response of pc-board mate-

rials at high frequencies. De-emphasis results in a smaller but cleaner signal eye, requiring a more sensitive receiver. New skew rules for pc-board traces make the constraints tighter than those of previous HyperTransport versions, meaning that loosely designed legacy boards may be unable to support the higher data rates. Original proposals included techniques such as dynamic phase alignment, which would have required scrambling and training that the consortium had eliminated to avoid further complicating implementation. The new spec continues to support features of HyperTransport 1.1, such as priority-request interleaving, in which control requests can pre-empt data in the middle of transfers, and direct packet, which enables direct streaming or tunneling of data.—by Nicholas Cravotta

► **HyperTransport Technology Consortium**, www.hypertransport.org.

► **The number of movie tickets sold last year dropped to 1.5 billion, from 1.6 billion in 2002, according to box-office-tracking company ReelSource. Analysts at the company attribute this decline in part to the rise in home-theater installations.**

Integrated TDM drops glue, increases flexibility

ZARLINK Semiconductor has introduced the ZL50073 family of high-density TDM/TSI (time-division-multiplexed/time-slot-interface) devices for high-bandwidth converged- and wireless-networking equipment, such as classes 4 and 5 central-office switches, media gateways, wireless base stations, and remote-access concentrators supporting as many as 128 input and 128 output streams at data rates as high as 64 Mbps.

Integrated per channel A-Law/ μ -law programmable-

data-rate conversion circuitry allows the switch to directly transmit information among peripheral components, such as converting between voice standards, without intermediary FPGAs, glue logic, or other external circuitry, thereby decreasing board complexity and cost. Flexible bandwidth allocation allows selection of data rates on a two- or four-stream basis compared with typical eight-stream data-rate selection. Integrated BER (bit-error-rate)-testing circuits with individual receivers and transmitters conform to the

ITU-T (International Telecommunication Union-Telecommunications) 0.151 standard, enabling simultaneous testing of all input and output streams. For applications requiring switching or holdover functions, you can choose from a range of PLLs accepting selectable input frequencies of 8, 16, 32, or 64 MHz, increasing your options when selecting a timing device. High jitter tolerance enables you to time switches directly from backplane clock and frame pulses, further eliminating intermediary timing

devices, and four frequency-selectable output clocks and frame pulses drive a variety of peripheral TDM components or circuits.

Available in volume production, members of the ZL50073 family range in size and stream support. The 24K, 96-I/O ZL50070 sells for \$127.50, the 32, 64-I/O ZL50075 sells for \$70, and the 32K 128-I/O ZL50073 sells for \$170 (all 1000).

—by Nicholas Cravotta

► **Zarlink Semiconductor Inc.**, 1-613-592 0200, www.zarlink.com.

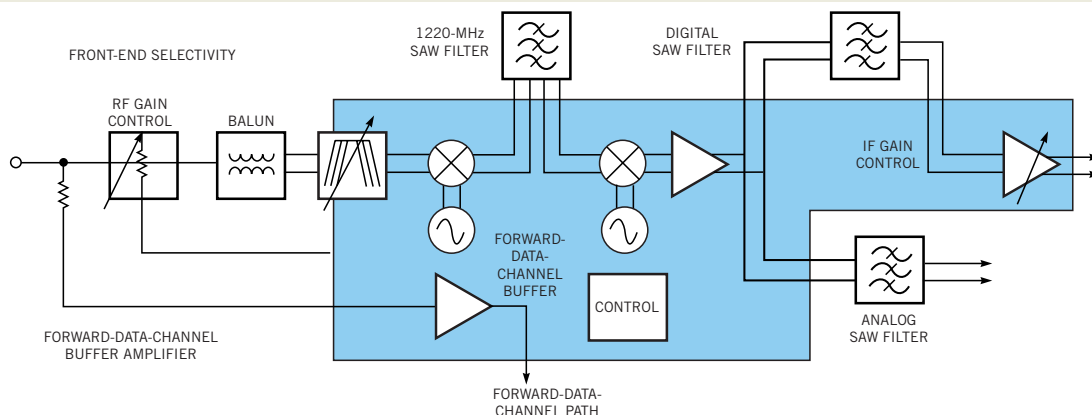
Avoid “tuner in a can,” yet receive more video

MICROTUNE’s MT2121, a SiGe (silicon-germanium) monolithic device, receives and tunes the 50-MHz to 1-GHz range, making it a good choice for cable set-top boxes and similar applications. It complies with CableLabs OpenCable requirements and integrates filter functions and input controls for reduced component count and footprint. The built-in preselection filter equalizes the differences in signal strength that inevitably occur across the input-signal band, resulting in better video images and reduced inconsistency. In addition, it boasts an on-chip fil-

ter for the out-of-band forward-data channel.

The dual-conversion architecture has both low-noise-amplifier and IF-amplifier blocks. The chip’s decreased phase noise and distortion are key to the successful gigahertz-bandwidth application, although the chip can’t improve the quality of the content itself. The 8×8-mm, 56-lead device dissipates 1.5W and sells for \$5.50 (10,000); Microtune also plans during this quarter to introduce a \$5000 evaluation kit.—by Bill Schweber

► **Microtune Inc.**, 1-972-673-1600, www.microtune.com.



Bring more channels through your set-top box with fewer components and non-ICs, using the SiGe MT2121 1-GHz tuner with built-in signal-chain-amplifier blocks, equalization, and a forward-data-channel amplifier.

► **Instat/MDR predicts that multimedia-networking revenue will grow from slightly more than \$2 billion this year to nearly \$5.7 billion in 2008.**

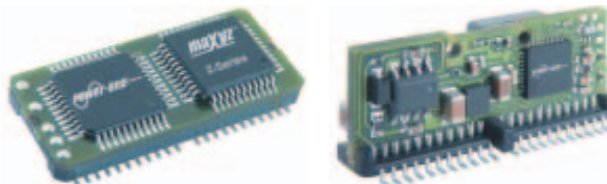
Approach radically alters design and manufacture of large electronic systems

POWER-ONE's latest products can significantly influence the design and manufacture of large electronic systems for such purposes as telecommunications central-office equipment, high-performance computing, and automatic-test equipment. The reason is the company's system-oriented approach to the design of its newest modules: the Z7100 PDM (power digital manager), which costs less than \$15 in evaluation quantities, and the ZY7020 and 7120 POL (point-of-load) dc/dc converters, which cost less than \$20 each in similar quantities.

The ZY7020 mounts with its pc substrate parallel to the plane of the host board, whereas the single-in-line ZY7120 mounts with its substrate normal to the board. Both of the 1.25×0.3×0.55-in. POL modules operate from an unregulated dc voltage in the unusually wide range of 3 to 13.2V and deliver a maximum programmable regulated dc output of 0.5 to 5.5V at 20A. All of the mod-

ules can communicate over an I²C bus. One Z7100 manages as many as 32 POL devices, which needn't be of Power-One manufacture.

By designing its POL units to operate from input voltages in a 4.4-to-1 range, Power-One has removed constraints from the host board's unregulated IB (intermediate-bus) voltage. The POL devices work with all of the popular IB values: 5, 8, or 12V nominal. Thus, if you use different IB voltages on different boards, you need not stock different POL devices. Even more important is the wide-range 11-to-1 programmability of the POL devices' regulated output voltages. As IC supply voltages have proliferated, the need to stock different POL units for each voltage has created an inventory-management nightmare for system manufacturers. Just one type of Power-One programmable POL unit covers the entire range of supply voltages that modern digital ICs use, although the company plans to add lower cost



The Z7100 performs a range of power-control and monitoring functions that would take you many ICs to implement (a). The ZY7120 is an unusual 20A-output POL dc/dc converter that operates from a range of supply voltages and produces a regulated output voltage that you can program either digitally or with a resistor (b). The ZY7120 can operate without the Z7100, and the Z7100 can work with modules from suppliers other than its own manufacturer.

POL units whose maximum output current is less than the initial units' 20A.

The POL devices internally store application-specific operating parameters. Thus, simple applications require no PDM. In addition, you can use a resistor to program a POL unit's output voltage. Also, the PDM need not operate during system start-up, so there is no Catch 22; systems in which a POL unit supplies power to a PDM start normally.

The PDM provides a more complete set of control and monitoring functions than do standard power-management

ICs. Moreover, unlike most such ICs, the PDM requires no external components, such as FETs in series with POL outputs to create tracking supplies.

For configuring, troubleshooting, and failure analysis, Power-One provides ZIOS (Z-Series Intelligent Operating System), a graphical application that enables you to program all of the many customization parameters, such as start delay and ramp-up speed, that the POL units can store.—by Dan Strassberg
►Power-One, 1-805-987-8741, www.power-one.com.

Power IC tackles basic, inefficient “droppers”

IN MANY LOW-COST, nonisolated applications that can tolerate poor regulation of derived voltage, designers use simple resistors or capacitors to decrease the voltage, but these passive designs are inefficient. The LinkSwitch-TN family from Power Integrations targets these situations with a series of monolithic ICs for load requirements as high as 360 mA. The buck or buck-boost switching supply you can build around this IC accepts 85 to 265V ac and offers 10% load regulation with typical efficiency better than 75%—far greater than the less elegant, less expensive, brute-force drop technique. The IC-based design maintains this efficiency at light load, which is useful for the standby mode of your application.

The self-powered IC includes a MOSFET power switch, jittered 66-kHz switching frequency to reduce EMI, overload auto-restart, and various fault-protection modes. The 170-mA LNK304P sells for 42 cents, and the 360-mA LNK306P sells for 59 cents (10,000).—by Bill Schweber

►Power Integrations, 1-408-414-9200, www.powerint.com.



Replace that inefficient, poorly regulated, resistor- or capacitor-based nonisolated voltage-dropping circuit by switching to the LinkSwitch-TN family of power-controller ICs.

Low-power transceiver adds CDR for medical-implant data

AMI SEMICONDUCTOR'S AMIS-52100 transceiver chip lets you design low-power radio-link data-transmission devices to operate in a number of licence-free bands under 500 MHz (depending on geography). The chip targets implantable medical applications, for which it has been equipped with features that may prove useful in other designs that require robust data transmission.

Optimised for use in the 402- to 405-MHz band, the device builds on the mixed-signal and RF experience the company gained with its predecessor ASTRIC low-power-radio family members. The 52100 differs in that it includes clock-and-data recovery from the ASK (amplitude-shift-keyed)-modulated data.

Other features include an oscillator that can start and

settle within 15 μ sec, allowing the receiver to periodically wake, check for a signal, and either go to full operation or shut down again, with very low power consumption. The company calls this cycle "sniff mode," and you can program registers to set system parameters and minimise power. In implanted devices that may depend on a long-life battery

to operate over many years, optimising these performance and power trade-offs is key to the final product specification. The 52100 will cost \$1.95 (50,000) as a discrete device and will also be available as IP for integration into ASIC designs.

—by Graham Prophet

► **AMI Semiconductor**, +32 55 33 22 11, www.amis.com.



You can use the AMIS-52100 in packaged or IP form as the radio link to interrogate implanted devices for medical data.

Go serial for simpler mobile-phone-display interconnect

ANOTHER HIGH-SPEED SERIAL LINK? Don't panic. This one targets a specific circuit function and has a tightly defined area of application—in its first implementation, at least.

National Semiconductor has designed MPL

(Mobile Pixel Link) to interconnect the system board and the display module in mobile phones and handheld devices, especially those with a clamshell design. The problem, which has a number of solutions vying for attention in the marketplace, is that routing the signals to drive high-resolution colour displays and feeding data from an onboard camera stretches parallel buses to the limit. You will also face problems of power to drive all of the lines, EMC generated by the high-speed edges on those lines, and physical restrictions due to the need to route the bus around the hinge line of a clamshell phone; the demands on a flexible ribbon interconnect are severe. As cameras on phones extend into the megapixel range, and colour displays of quarter-

VGA resolution are called on to show reasonable-frame-rate video, the problems become more intractable.

National Semiconductor is, therefore, proposing MPL as an "open" offering, in the hope that it will become a de-facto standard. MPL uses a low-current-mode system in which signalling occurs by a shift in current level; the current is unidirectional with no reversals, leading to low radiated emissions. You will be able to achieve a comparable data rate with around 5% of the power of a full LVDS (low-voltage-differential-signal) link, and the company says that power will also be lower than RSDS (reduced-swing differential signalling), or 8-bit parallel buses running at 2.8 or 1.8V. (The comparison is for an MPL operating from 3V.)

As an interim "fix" for existing and in-progress designs, National Semiconductor is introducing the LM25601 camera and 2502 display interface chips, which implement just the physical layer of the link. You can reduce the link to a handful of wires in each case; the chips come as serialiser/deserialiser pairs and will replace the physical-layer links with 8- and 16-bit-wide interfaces, respectively. The company refers to this introduction as Level 0 of its concept. It will later introduce Level 1, which will include an extended media-access definition and a command-set data structure for tighter integration into portable designs.

MPL will include guidance on connectors or on physical media, which can be either a pc board or a flexible interconnect. If the proposal gains traction as a standard, the company envisages a Level 2 that might include features such as a graphics-API (application-programming-interface) definition.

—by Graham Prophet
►National Semiconductor,
www.national.com.

Devices and standards progress for cellular handsets

THE ANNUAL CELLULAR-FEST of the 3GSM conference brings with it a plethora of announcements in the mobile-communications arena. IP provider TTPCom (www.ttpcom.com) has introduced a cellular-modem reference

design that revises system partitioning of functions in the conventional mobile-phone architecture. Rather than split signal-processing and control functions between a DSP and a control processor, the new modem design integrates everything from protocol stack to RF drivers on a single processor.

The design exploits the capability of the new generation of microprocessors with extended DSP functions; specifically, TTPCom is using the StarCore S1400 for its first demonstration of the concept, although the company says that other implementations may follow. Today's phones are likely to need a conventional microcontroller to run high-level applications, and the available cycles of that machine are limited if it is

constantly dealing with high-priority interrupts from the communication system; freed of that load, the microcontroller can run an open operating system.

You will also see benefits in a unified and smaller memory requirement for the modem itself and in lower power demand. By separating modem and application domains, TTPCom adds, you will also reduce the need to reverify correct modem operation each time a new phone variant is designed.

From Silicon Labs (www.silabs.com), comes a chip that you might have thought impossible: a power amplifier for a GSM/GPRS (Global System for Mobile Communications/General Packet Radio Service) handset built entirely in standard CMOS technology. All

functions, from transceiver to antenna switch—including high- and low-band amplifiers, complete GSM power control, thermal- and load-mismatch protection, harmonic filtering, and matching networks—have been integrated onto one die. Its makers also claim it is better specified than previous power-amplifier modules, offering margins to specification across full voltage and temperature ranges.

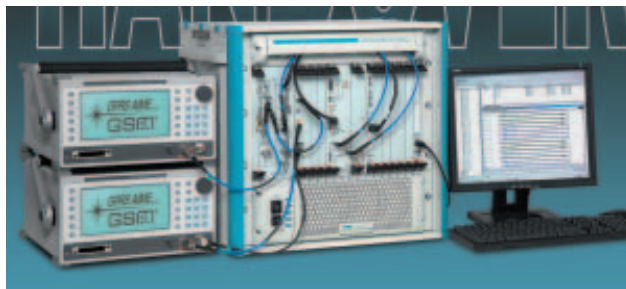
The design uses an undisclosed architecture that is sufficiently innovative to warrant the description of a new "class" of operation; in particular, it can handle the voltages experienced by the output devices (which can reach 12 to 20V in the case of poor antenna match) with transistors built in a standard 0.35-micron process. It will deliver the full 3GPP (Third-Generation Partnership Project) power level of 33 dBm.

Built as a single die with flip-chip mounting, its thermal performance is also better than a multichip module's, the company says. Coded Si4300, the device will be available as an 18-pin land-grid array and will cost \$2.82 (10,000). You can use Silicon Labs' new architecture with the nonlinear GMSK (gaussian-minimum-shift-keying)-modulation GSM signal. The device does not extend to the linearity needed for WCDMA (wideband-CDMA) signals, although the company does not rule out such a progression.

SiGe Semiconductor (www.sige.com) is offering just such a device—an integrated amplifier for WCDMA handsets in the 1900-MHz band. Living up to the company's name, the RangeCharger SE5120 uses SiGe (silicon-germanium) technology licensed from IBM, where previous offerings predominantly used GaAs (gallium arsenide). The device integrates a three-stage power amplifier that will output 28 dBm with a linearity of -38 dBc. Compared with a modular solution, the device removes the need for a separate voltage regulator, power-amplifier power switch, detector, and isolator. Its conventionally constructed lead-frame package improves thermal performance, and the signal path requires no external passives.

Racal Instruments (Wireless Solutions, www.aeroflex.com/riws) offers the 6401 AIME/CT ISHO (Intersystems Handover) test set, which targets a potentially thorny problem that will emerge with 2G/3G (second- and third-generation) handsets: performance-measurement issues in the handover between networks. Initial products are believed to have suffered from poor performance and dropped calls, particularly when handing off from 2G to 3G services. Racal says that most of the certified test cases for 3G so far relate to basic network operation. The company currently has a group of 51 test cases due for submission.

—by Graham Prophet



You can follow the detail of the handover from 2G to 3G networks and vice-versa with Racal Instruments' ISHO test platform.

► Gartner Inc reports that worldwide PDA shipments fell by 5.3% in 2003.

ARM, Synopsys bid to shape IP verification with “how-to” manual

IF YOU WORK IN PURCHASED IP (intellectual property) for ASIC designs or in intracompany design-reuse programmes, your bookshelf may well include a copy of the *Reuse Methodology Manual*, co-authored by Synopsys’ staff and other contributors from the IP and EDA communities and in its third edition since first publication several years ago. Now, Synopsys is attempting a similar exercise in the verification space, announcing that it will by midyear produce in collaboration with ARM a draft text of the *Verification Methodology Manual*.

Not surprisingly, given Synopsys’ position on the system-level-languages debate, the company will structure the methodology around System Verilog. The intention, Synopsys says, is to produce a unified, fundamentally coverage-driven, verification scheme that will be defined in an

open, standards-based way. It intends the scheme to be scalable and to allow verification at any hierarchical level of a design, starting at any level. Currently, industry offerings address the verification problem with myriad point tools, each of which comes with its own methodology and design flow; if you structure your efforts around a unified language, you can adopt a unified methodology, the company asserts. ARM’s interest in the process is that, as an IP provider, it must deliver its products in a verifiable form, and it faces the problem of supplying to a market in which disparate verifications methods will be brought to bear. If there is no standard for writing verification files, providing verifiable IP will continue to be a problem, the company says.

The two companies hold out the promise of being able to carry out two

to five times more verifications cycles for a given effort, minimising the amount of code you write, because much of what you might otherwise have written explicitly for elements such as testbenches is implicit in the SystemVerilog language. Nevertheless, the two companies say that the approach will allow for interoperation with IP defined in existing hardware-description languages and SystemC and will be adaptable to new techniques. Synopsys will implement the approach with Testbench and assertion building blocks in its Discovery Verification Platform, and its own DesignWare IP will become fully compliant with the methodology.

—by Graham Prophet

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►ARM; +44 223 400400, www.arm.com.