



**PARAGON  
INNOVATIONS**

## News in Brief...

Paragon Expands, Moves to New Site!

Remaining in the Telecom Corridor, Paragon Innovations will relocate Nov. 1 to a brand-new, state of the art, custom designed building in Plano, Texas at 2100 10th Street. This new facility is designed to accommodate Paragon's expansion and growth as they continue to provide quality embedded hardware and software designs with the most complete and comprehensive documentation package the industry has to offer.



**SHORTAGES:** Components Availability is Tight!  
Below is a list of some of the lead times we have been quoted recently by our vendors.  
Greater than 20-week lead times

- Tantalum capacitors
- Discrete power semiconductors
- Crystals
- Static RAM
- FLASH
- Hitachi H8/3847 processors

14+ to 20-week lead times

- Most popular microcontrollers
- Linear devices
- Integrated power devices (Regulators, etc.)
- Optical components (LEDs, opto-isolators)
- Hitachi H8/3887 processors
- LCD FEMA Display (80-M-035)

On allocation now or very soon

- LCD Components
- Ceramic capacitors
- Ferrite beads
- EPROM, EEPROM
- SOT-23 devices

Engineering Services

- PCB Layout is 4 - 6 weeks out

# inside TECHNOLOGY Report

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## ESC Survival Guide: What To Do In San Jose



The glorious event anticipated by all embedded systems engineers, software programmers and semiconductor developers - the Embedded Systems Conference - starts Sept. 24. Having made the journey many times, Paragon would like to offer our tips and insights to help make your ESC experience enjoyable and rewarding.

### Conference Tips and Tricks

- Planning is everything. Plan each day in advance according to which booths you want to visit and classes you would like to attend. The best time to visit exhibits is during classes you aren't attending.
- Wear comfortable shoes.
- The dress standard is casual. Jeans or khakis are perfect.
- Attend "Shop Talk" from 7:30 a.m. to 8:30 a.m. Monday through Thursday. It's a roundtable/coffee discussion to meet peers and discuss relevant topics.
- Attend any class given by Jean Labrosse, Dan Saks, Charlie Melear or our own Mike Willey. Check your conference guide for the times and locations of their presentations.
- The lunch hour is the worst time to get food from the conference vendors.

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## Paragon Welcomes Alchemy Semiconductor as a New Customer

### Paragon to design and build test/evaluation boards for Alchemy's first System-On-A-Chip

Paragon Innovations has been selected by Alchemy Semiconductor Inc., based in Austin, Texas, to design and build an evaluation/test board for Alchemy's first system-on-a-chip (SOC), the Au1000™ Internet Edge Processor™.

The test/evaluation board will demonstrate the features and capabilities of the Au1000 system-on-a-chip, which can be used in products ranging from personal digital assistants (PDAs) and mobile phones to Internet appliances and set-top boxes.

Based on the MIPS32™ instruction set and designed for high performance at very low power, the Au1000 is highly integrated with on-chip memory controllers and Internet access peripherals. It runs a variety of operating systems, including Windows® CE, Linux®, and VxWorks®. Alchemy has also integrated a set of peripherals on the Au1000 targeted at communications market segments with products that operate on the outer edge of the Internet network. These include wireless palm-sized PCs, 3G (third-generation) data devices, VoIP telephony devices and networking products like residential gateways, firewalls and routers.

*"We chose Paragon Innovations to design and build the evaluation/test boards for the Au1000 because of their comprehensive design experience and in-depth documentation procedures."*

*Eric Brockman, president and CEO  
Alchemy Semiconductor Inc.*

## ESC Survival Guide continued

- Bring a sack lunch if you want to avoid the long lines and costly prices. There aren't any fast-food places within walking distance of the convention center.
- The Hilton has a good restaurant, but it's pricey.
- Everyone hands out giveaways. To avoid going home with more than you brought, ask the exhibitor to send it to you.

### Getting Away from the Conference

ESC isn't the only game in town. San Jose is, after all, the heart of Silicon Valley. There are plenty of non-conference things to do.

- The Tech Museum of Innovation is a must-see. This year there is an ESC attendee party at "The Tech" on Wednesday night.
- For a tech diversion, visit The Winchester Mystery House.
- For a vacation, Paramount's Great America theme park is a short drive away and historic San Francisco is an hour away, without traffic.
- Burk's is a great place to eat. Paragon holds its pre-show party there every year.
- Scott's Seafood and Original Joe's (Italian) are also Paragon favorites, and both are within walking distance of the convention center.

ESC can be a wonderful and exciting experience if you do some careful planning and know what's available. Check out San Jose's Web site at [www.sanjose.org](http://www.sanjose.org), for more information. One final thought, we'd like to remind you one more time to WEAR COMFORTABLE SHOES!

### Visit Paragon at the Embedded Systems Conference in booth #2032

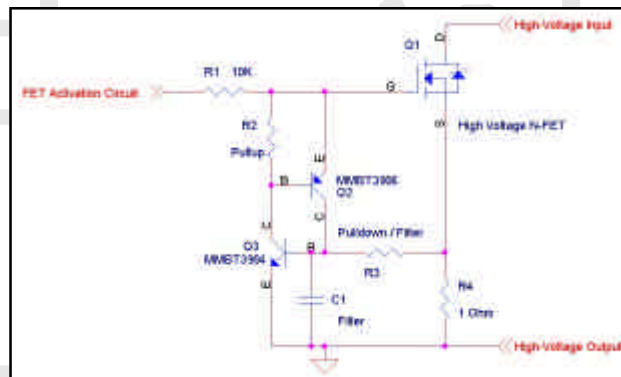
Paragon's Mike Willey will also be giving three presentations. Check him out!

Class #441, 2-3:30 p.m. on Wednesday  
Class #461, 4-5:30 p.m. on Wednesday  
--Part 1 (441) & 2 (461), Utilizing the World's Least Expensive Network Topology  
Class #500, 8:30-10 a.m. on Thursday  
--Connect to the Internet for Free... Well, Almost Free

## Design Ideas! Overcurrent Protection for High Voltage Devices

One of the hallmarks of a well-designed device is good circuit protection. It is especially important to have polarity-independent wiring, overvoltage protection, and overcurrent protection in tough industrial environments. The same industrial environment that makes this circuit protection necessary also makes it very difficult to provide. Often replacing a fuse is impossible or undesirable and the voltages can be 1kV or more.

The voltage protection and polarity-independent wiring problems are simply solved with a bridge rectifier and a TVS diode. The circuit below provides an excellent solution for the overcurrent protection:



### Overcurrent Protection Circuit

Resistor R4 sets the maximum current that will be allowed. In the design shown, R4 will experience a 0.7V drop when the current through the FET (Q1) is 700mA. This voltage will cause transistor Q3 to begin conducting. When Q3 is activated, it will attempt to draw a large amount of current through the base of Q2. This will activate Q2 and will quickly drain the gate voltage of the FET, turning it off and protecting the circuit. R1 is required to keep the power supply from holding the gate voltage of the FET high.

The back-to-back connection of Q2 and Q3 creates an avalanche circuit that causes them to drive each other and keep each other conducting until the gate energy of the FET has been completely drained. When the gate voltage of the FET has been drained and the current through R4 has fallen below 0.7V, the avalanche circuit will turn off and the FET may resume operation.

## Find Us At ESC and Win a Handspring!

Visit Paragon's Mike Caranfa at booth #2032 to enter a drawing for a Paragon-Blue HandSpring Visor Deluxe. Give him your business card with "HandSpring" written on the back. The drawing will be held at noon on the 28th. Participants need not be present to win.



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Responsive • Innovative • On-time/On-budget

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