EMAC The EMAC Newsletter

EMAIL Vol 1.5

Welcome to EMAC Email, a newsletter from EMAC, Inc., provider of single board computers, peripherals, and custom engineering to meet your embedded systems needs.

FEATURES

Trade Show News

Applied Computing Conference & Expo

Thank you to those of you who stopped by our booth at the Embedded Systems Conference in San Francisco last month. We enjoyed meeting you and look forward to seeing you at the Applied Computing Conference and Expo in Santa Clara this month. EMAC will be exhibiting in Anna Technology Booth, number 231.
The Applied Computing Conference and Expo will be

- May 14 - 17
- Santa Clara Convention Center
- 5001 Great America Parkway, Santa Clara, CA

For a FREE Applied Computing Conference and Expo Show exhibit pass, please log on to: http://www.annatechnology.com/acconf/index.asp . Sign up for a FREE exhibit pass and get a free one day pass to the Technical Conference, a $370.00 value.

Coming Up: Look for EMAC and fellow Anna Technology Company, J. Gordon Electronic Design at the Embedded Systems Conference (Booth # 232) at Navy Pier in Chicago, July 10 -11. For a FREE ESC Show pass log on to http://www.esconline.com/chicago/freepass.htm .

This pass qualifies you for:

- Admittance to the 2-day Product Exhibits
- A chance to see the latest technologies
- Keynote Address by Robert X. Cringely: “And the Embedded Shall Inherit the Earth”
- Opening Night Reception - “Summer Nights on the Lake”, complete with hot dogs, beer, popcorn, snow cones, and cotton candy.

Plan to join us this July on “The Pier” for some summer fun!

Product Highlight

PCM-48E26

Carbondale, Illinois, May 1, 2001-EMAC, Inc., announces the PCM-48E26, a compact Half-EBX board with four serial ports, Ethernet, and video. Unlike other compact Half-EBX boards, the PCM-48E26 comes with four serial ports, allowing for greater flexibility.

The PCM-48E26 Half-EBX board has an embedded AMD 486 DX5 133Mhz processor (no fan required) and utilizes the RadiSys R400EX chipset. This Half-EBX board supports up to 64MB of 72pin SIMM EDO memory and up to 288MB of DiskOnChip(solid state flash disk (no moving parts). The PCM-48E26 can be connected onto a network using the SMC 91C96 10Base-T Ethernet controller and onboard RJ-45 connector.

The PCM-48E26 utilizes the C&T 65550 video chip with 1MB of onboard DRAM memory, which supports CRT and the flat panel display simultaneously. This chipset has a resolution of up to 1024 x 768 @ 256K colors.

The PCM-48E26 offers three RS-232 serial ports, one RS-232/422/485 port, and a parallel port that supports SPP/EPP/ECP parallel modes. This Half-EBX board includes a keyboard/mouse connector, a PC/104 connector for expansion, and a lithium battery for real time clock and data retention. In addition, the PCM-48E26 has a FDD interface that supports up to two floppy disk drives, an EIDE interface that supports up to two EIDE devices. This Half-EBX board is 5.75” in length, 4” wide, that weighs 0.37 lbs., making it a great fit for limited-space applications.

PCM-48E26 - http://www.emacinc.com/pc_compatible_sbcs_info/pcm48e26.htm

Newsletter Promotion

PPC-E5

EMAC’s new Compact Panel PC, the PPC-E5, packs in the features in just 6.2 x 4.5 x 2.0 inches, making it a great fit for limited space applications in process control or industrial automation environments. Ready to run with either Linux X Windows or Windows CE 3.0 installed on flash disk, the PPC-E5 comes with vivid color LCD, responsive integrated touch screen, AMD DX5 133 MHz Processor, PC/104 expansion bus, SMC 91C96 10 Base-T Ethernet, 16 MB of EDO memory, and 16MB of DiskOnChip. This month, we are featuring :

A FREE Bezel with the purchase of PPC-E5 with the memory upgrade (32 MB EDO and 32 MB DiskOnChip), a $45.00 value.

Regularly priced at $995.00, the PPC-E5 can be purchased with the above memory upgrade and an RS-485 upgrade (RS-232 to RS-485). For more information and a view of the product, please visit: http://www.emacinc.com/pc_compatible_sbcs_info/ppc_e5.htm.

Technical Forum

EMAC, Inc. to resell Jungo WinDriver and KernelDriver - Driver Development Tools

EMAC, Inc. is proud to announce that we have taken on WinDriver and KernelDriver - Jungo's powerful driver development toolkits.

WinDriver, enables quick creation of high-performance device drivers for PCI, Compact PCI, USB, ISA, ISA PnP and EISA buses. Hardware access applications you create with WinDriver will run on Windows ME, 95, 98, NT/NT Embedded, 2000, Windows CE, Linux, Solaris, VxWorks and OS/2. WinDriver features a unique graphical Wizard, for hardware diagnostics and automatic code generation.

WinDriver's architecture enables the development of specific hardware access applications, without having to write a kernel mode device driver. All hardware access is done in the application, through the WinDriver interface, while maintaining kernel mode performance.

KernelDriver automates the development of Standard, Miniport, (NDIS, SCSI, Video), Filter or Layered device drivers, providing powerful tools for hardware debugging, driver code generation, and driver debugging for PCI / USB / ISA and EISA under Windows 2000/NT, Windows 98/95 and Linux.

KernelDriver for Windows and Linux includes the powerful Driver Wizard to graphically debug your hardware before writing a single line of code and then generate a complete kernel mode device driver.

New features for version 5.0 include: Added a Graphical User Interface (GUI) to WinDriver for Linux and WinDriver for Solaris, a remote access feature is incorporated into WinDriver Wizard. Remote Target is currently supported on Windows NT/2000, Linux and Solaris. Remote Host supported on NT/2000/9x/ME/CE, VxWorks, Solaris and Linux, improved documentation, and more.

Engineering Success Story

GSI / Cumberland Hatcheries

When it came time for GSI/Cumberland Hatcheries to develop a new fully automated hatchery system they chose EMAC. EMAC's experience with web enabling devices using our Server-In-a-Box (SIB) technology was critical component in the design. Using this technology EMAC is able to Web enable serial controller based systems.

GSI/Cumberland's old hatchery system required that they fly around the world to the remotest parts of the earth to troubleshoot their hatchery systems. The new system developed by EMAC allows GSI to fully troubleshoot the system via the web, or where the Internet is not available to dial in directly to the system, similar to dialing into an Internet provider.

The system uses a SCADA approach where all the real-time control is performed by a custom controller board designed and manufactured by EMAC. This board controls temperature and humidity to a tenth of a degree, controls three phase motors for the pulsator fans, and a hydraulic system for the egg turner. A graphic system communicates with the Controller board in order to interrogate the system.

The Controller board communicates via isolated RS485 using UDP/IP protocol to a Front Panel Display and an SIB. The Front Panel Display is a 486 PC-SBC running a Netscape browser on

Linux OS. It uses a 7.7" LCD with Touch-screen and all of Netscape's chrome/controls have been cut off. When a user uses the Front Panel Display the user has no idea that he is using a Browser based interface.

The controller connection to the SIB provides the user with remote access to the system. The system can be comprised of up to 200 Controller boards and the SIB provides a window in to the whole system. Using a client system running a browser connected to the SIB either through network or dial-up, the user can select the unit, and pull up information on that unit as if they were in front of the machine. The beauty of the system is that you are using the same graphics and user interface for the local user interface as for the remote user interface.

Trends in Technology

Future PC/104 Trends

I believe that PC/104 has a viable future in years coming. The addition of PC/104 plus will provide opportunities for hardware designers to leverage newer technology while using a form factor that is comfortable for them.

Embedded Single Board Computers (SBCs) are becoming more and more integrated. Engineers have more choices than ever when designing an embedded system. What used to require a card cage and several cards is now on a single board! Because of this trend, bussed systems using Compact PCI format are moving toward the higher-end applications such as telephony and the lower end applications are typically using SBCs.

There are a number of reasons to transition to a SBC from a bussed system for embedded applications: cost, system size, power consumption, enhanced reliability, and reduced inventories just to name a few. So how does PC/104 fit into this picture? In embedded systems there will always be requirements for add-on expansion modules. Whether it's an ADC, GPS, frame grabber, or some other peripheral, this need will always exist. When constructing a SBC designers are looking for a compact method of adding these peripherals. The natural choice is PC/104 especially for X86 architecture, which is very prevalent in the SBC market.

With Wintel mandating the end of the ISA bus, PC/104 plus becomes the lifeline for the PC/104 format. We are starting to see a trend in the embedded processor market where PCI is integrated into the processor. AMD's SC520 and ZF Device's Mach Z x86 are good examples of this. Integrated processor PCI makes PC/104 plus easy to implement on the SBC side. This direction is clear to me.

On the peripheral side we are starting to see more components that support PCI and less that support ISA. For example you would be hard pressed to find an ISA based 10/100 Base-T Ethernet chip. With peripherals becoming more prevalent in PCI format it is just a matter of time until the PC/104 market catches up and starts designing more PC/104 plus modules.

EMAC is going to move forward and offer customers PC/104 plus SBCs and peripherals. That is not to say that all SBCs offered will be PC/104 plus form factor, but most will have PC/104 plus peripheral module compatibility. As processor and peripheral chips achieve higher levels of integration, a number of EBX form factors SBCs could be accommodated in the smaller PC/104 form factor. At that time EMAC will offer a larger selection of PC/104 plus SBCs.

On the software side EMAC will continue to support Embedded Windows NT, Linux, Real Time Linux, DOS, and Windows CE all operating from flash or hard drive and Windows 98 from hard drive only. Next year we are looking at also supporting embedded Windows 2000 (Whistler) when it becomes available.

EMAC Extras

EMAC Specials

All the items on this page are either discontinued or must leave our inventory. However, these specials are NEW and have a full two-year warranty. As always these products have EMACs service and reliability to back them.

These items could serve as a prototype for a new product without the cost of newer more expensive boards. At the same time they could serve as an inexpensive alternative to the one time application or to the basement tinkering. So don't be the last to pick up these great specials as they are of limited quantities.

EMAC Specials - http://www.emacinc.com/emac_specials.htm

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