EPSON

Hall A6, Stand A6.161

NEWSLETTER 2000

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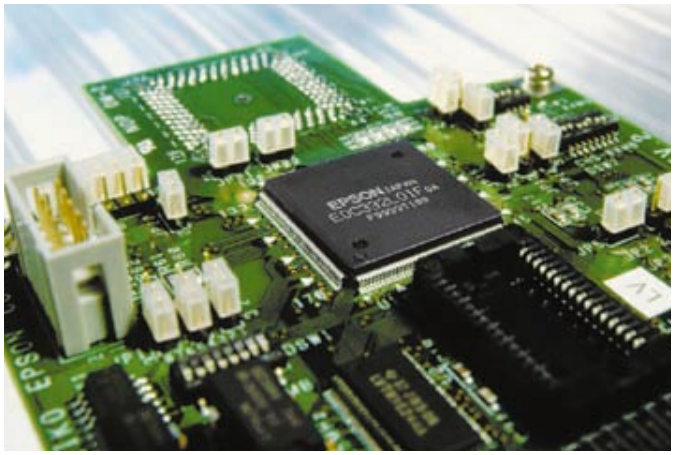
EPSON presents @ electronica 2000

ASMIC

FIRST 32-BIT RISC WITH EMBEDDED LCD-CONTROLLER



Shown at our Microcontroller Energy Tank is the E0C332L01, a high-performance, low-power 32-bit RISC MCU combined with an LCD panel interface for a complete system-on-a-chip solution. With high-speed operation, minimal power consumption and low cost, E0C332L01 is especially suitable for portable applications such as point-of-sales terminals, digital cameras, PDAs and other handheld devices. With built-in peripheral functions including LCD controller (embedded EPSON SED1374/VRAM) and A/D conversion it provides a DSP functionality realised with a MAC (multiplication accumulation instruction: 16 bit x 16 bit + 64 bit). This structure allows minimisation of overall system costs and elimination of the need to use and configure additional components.

The E0C332L01 development tool set includes an optimised C compiler (based on GNU GCC 2.7.2) and real-time operation system (ROS33), "In Circuit Debugging" (ICD33) and a wide range of emulation probe of devices. EPSON provides high level firmware optional, including voice compression/decompression (VOX33), voice recognition in real-time (VRE33), Jpeg compression/decompression (JPEG33) and a melody library (MELODY33) – allowing faster coding and reducing the time-to-market. Graphic, Sound and Text to Speech libraries are available.

For further information please ask our Microcontroller team at the ASMIC Energy Tank.

ASSP

LCD CONTROLLER WITH LOW-LATENCY CPU INTERFACE

Our Engineers at the ASSP Energy Tank exhibit the SED1376, a color/monochrome LCD graphics controller with an embedded 80 KB SRAM display buffer. The only LCD controller to directly interface to the Sharp HR-TFT and EPSON D-TFD families of LCD panels. Not requiring an additional timing control ASIC, it provides a low cost, low power, single chip solution for the embedded and handheld markets.

With its embedded memory, SED1376 is one of the most comprehensive controller solutions on the portable device market. The SED1376 is not limited to a single CPU type or operating system, thus giving embedded systems designers a flexible, simple, and therefore cost-effective means to integrate LCD displays into their products. Using a guaranteed low-latency CPU architecture, SED1376 provides support for microprocessors without READY/ WAIT# handshaking signals. The 32-bit internal data path provides high performance bandwidth into display memory, enabling fast screen updates.

The Swivel-View™ feature allows 90°, 180° or 270° hardware rotation of the display memory for products requiring a rotated display image, greatly increasing overall system performance. SED1376 also supports Picture in Picture Plus, an overlay window feature allowing two images to be displayed simultaneously with complete software control of the window's size and position.

For further information please ask our LCD Controller/Driver team at the ASSP Energy Tank.

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LCD

MD-TFD TECHNOLOGY WITH UNIQUE POWER CONSUMPTION

For the first time EPSON will present its success in the MD-TFD technology on a show in Europe. Although the 40 mW power consumption of EPSON's first generation of reflective colour displays was significantly less than that of the TFT-based LCDs around, EPSON continued to develop this technology further so as to address the demands of the mobile communications market for power and space saving features even better.

The MD-TFD technology will have the same 8-bit-wide standard CPU interface as it is found in elongated COG drivers and already being used in passive LCDs.

In addition to the use of a glass substrate just 0.5 mm thick, a highly space-saving assembly method is used to reduce the display's exterior dimensions and weight.

The power consumption of a reflective or transflective MD-TFD based display consisting of 160 x RGB x 240 pixels is as low as 5 mW when showing a static display content.

The main reasons for the MD-TFD LCD's exceedingly low power consumption are the implementation of video memory in the display data drivers and the use of a highly efficient voltage transformer developed by EPSON itself.
The use of the implemented power saving mode, allowing unused parts of the display to be flexibly switched off and the remaining part to be scrolled, means that a further significant reduction in power consumption is possible.

EPSON's brilliant power and space-saving technologies make the unique MD-TFD LC displays ideal for use in mobile applications such as portable PDAs, mobile videophones and other mobile video applications.

For further information please ask our LCD team at the LCD Energy Tank.

QD

ULTRA-LOW JITTER HIGH FREQUENCY CLOCK OSCILLATOR

Displayed at the Quartz Devices Energy Tank, the EG-2001 is the first in a new series of ultra-low jitter high frequency clock oscillator solutions by EPSON. The EG-2001 uses EPSON's high-stability quartz SAW technology which is setting a new performance benchmark for the latest applications requiring high reference clock frequencies with Ultra Low Jitter. Surface Acoustic Wave (SAW) based oscillators are known to be the most reliable and stable oscillators while offering the lowest possible clock jitter available, (compared to 3rd overtone and inverted mesa based designs).

Clock Jitter - a common source of problems in high-speed designs - is minimised by the EG-2001 because it oscillates in fundamental mode only, providing the lowest jitter and noise rejection performance. The direct fundamental mode vibration assures that the jitter of the EG-2001 is among the lowest available for high-frequency oscillators. EG-2001 facilitates achievement of System Jitter Compliance which is vital in the latest high-bandwidth driven applications including:

- Gigabit Ethernet
- Fibre Channel
- High Speed Processors and System Buses
- Next Generation Network Technologies
- High Speed Direct Digital Synthesis
- Instrumentation

For further information please ask our Quartz Devices team at the QD Energy Tank.

Specifications

Frequencies	106.25 MHz to 166 MHz
Operating voltage	3.3 V
Output level	CMOS
Stabilities	+/- 100x10^{-6} (0°C to 70°C) incl.10 yrs. aging
Jitter	3psec rms (typ); 4psec rms (max) 25psec pk-pk (typ); 40psec pk-pk (max)
Rise and fall time	2 ns
Technology	SAW (**no** PLL)
Package size	7.0 x 5.0 x 1.2 mm^3

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SLP

CARD PCI/GX STARTERKIT CUTS DESIGN TIME

At the SLP Energy Tank we will show you the just lately launched development kit, the Cardsystem-PCI. This development kit is based on the EPSON Card PCI/GX and supports the development of embedded systems and applications during the hard- and software design phase.
The Cardsystem-PCI cuts your design time dramatically by providing a ready-to-run system consisting of a mother-board, a Card-PCI/GX with 32 MB at 200 MHz using the Geode GXLV processor from National Semiconductor, a Compact Flash Card with a Windows CE demo image plus runtime license, software, documentation and cables.

Hardware Development Kit
The Cardsystem-PCI is a single board computer based on the EPSON Card-PCI/GX. The main board makes a broad range of interfaces available to the user: 2xIDE, 4xPCI, 2xISA, 2xUSB, 2xserial, parallel, CRT, LCD, PS/2 style mouse and keyboard as well as a standard ATX connector for the power supply. After unwrapping and connecting the power supply the system is ready to run. For initial testing and exploring the system a 16 MB Compact Flash Card including a demo image of Windows CE is included.
This makes it a useful tool for hardware integration and the test and development of the application software. In order to support the hardware integration EPSON provides software tools for the adaptation of the EPSON modified Award BIOS.

Software Development Kit
In addition, EPSON offers a separate Software Development Kit for Windows CE. This software development kit includes device drivers for Card-PCI/GX (video, IDE, serial, parallel, LAN, PCMCIA, etc.), EPSON tools, documentation and cables. This kit plus Platform Builder from Microsoft enables OEMs to build and optimize Windows CE systems even without deep knowledge of Windows CE.

Price and Availability – The Cardsystem-PCI is available for a special price of EUR 1990.-

Please ask our Card PC team at the SLP Energy Tank for details.

Come to visit us

at our booth in **Hall A6, Stand A6.161**

Speak with the engineers behind the products and have your queries answered personally. Or just tank up with free EPSON energy.

We are looking forward to welcoming you at the EPSON booth !

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Get more information about ASICs at
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