

Fully Integrated Rugged Systems Solutions

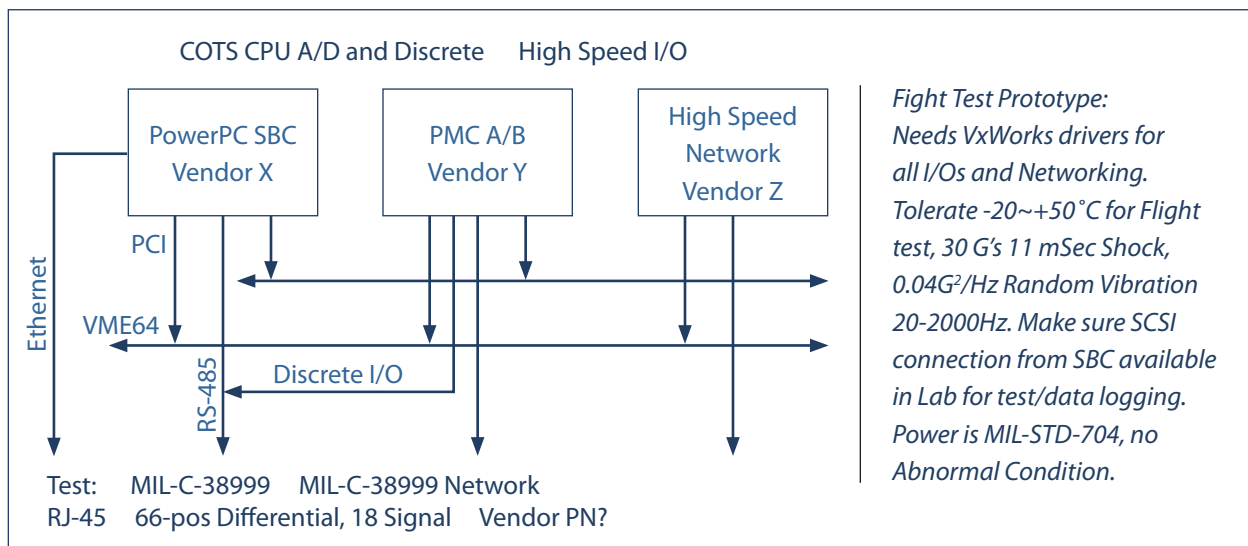
“THE FIRST FOURTEEN WEEKS OF THE SCHEDULE SHOWS COTS MODULE INTEGRATION AND TEST. CAN WE SHORTEN THAT?”

Now you can. Imagine hitting the ground running with your next rugged system design by leveraging existing Commercial Off The Shelf (COTS) technology from world leading providers. Imagine focusing your critical time and attention on the application at hand rather than the underlying computing modules. Imagine starting your program with a running qualified computer, instead of a kit.

Acme Embedded Solutions are COTS module integration experts. Leveraging our experience in rugged COTS based turnkey systems, spanning over a decade, we know the tricks and traps that a systems integrator can

encounter when assembling their system from disparate modules. We specialize in making it all work together, so you don't have to.

Employing state of the art test facilities and fixtures, Acme guarantees operation of ruggedized modules to your program requirements, and backs it up with MIL-SPEC qualification test results. From technology sourcing through to system installation and training, Acme Embedded Solutions is your supplier of choice for integrated COTS flight ready systems that meet your demanding environmental standards.



Conceptually, a fully integrated system looks logical and straightforward... until you run into the details of cabling, connectors, inter module compatibility, and device driver conflicts. When a system calls for modules from multiple vendors, a simple problem can be very, very frustrating to solve. Acme Embedded Solutions uses a proven integration process including proprietary software integration tools and verification procedures that get all the modules in the system working together. And we deliver that system ready to run YOUR application software right out of the box, Guaranteed.

NOW YOU CAN: CALL ACME EMBEDDED SOLUTIONS WITH YOUR PROGRAM REQUIREMENTS

**Get A Full
Power Start**

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Low Power Controller Module for Embedded Applications

The BT-101A is a small form factor control module supporting popular I/O interfaces for embedded control applications. Based upon the well supported PowerPC architecture, the BT-101A offers very high levels of integration and I/O flexibility in a small, low power and cost effective package.

FEATURES:

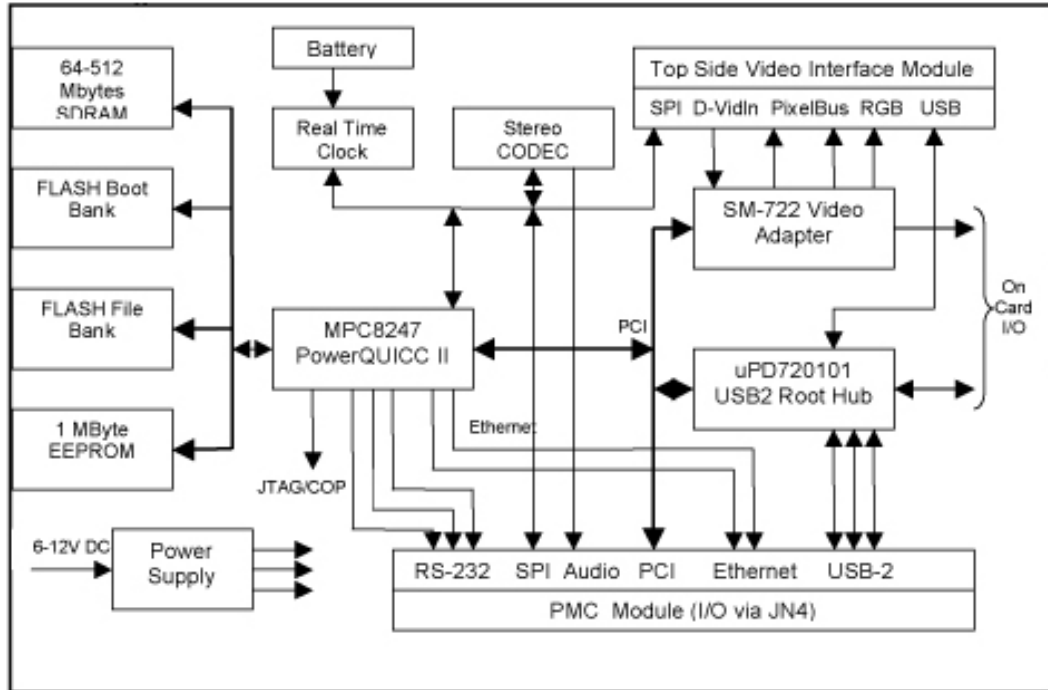
- Freescale PowerQuicc MPC8247 at 400 MHz
- Up to 512 Bytes SDRAM in 144-pin SODIMM
- Two independent FLASH banks up to 256 Mbytes each
- Optional EEPROM
- Battery Backed RTCC
- Two Independent 10/100 BaseT Ethernet I/F
- Three RS-232 Serial Ports
- SM-722 Video Controller supports dual displays
- Selectable RGB, TTL, or optional LVDS I/F
- Video input port for optional overlay capability
- Five high speed USB 2.0 ports
- PMC interface with 32-bit/33 MHz capacity
- AC-97 compliant stereo audio CODEC
- I/O via PMC interface JN4 for flexible connectorization
- Linux support standard

APPLICATIONS:

- Optimized for embedded control in a networked environment
- Allows flexible video display to standard CRT's and flat panel displays in user display applications such as information kiosks, point of sale, or machine control
- Ethernet and USB connectivity allows interface to a wide variety of common peripheral devices such as card readers, pointing devices, printers, or other peripheral
- Very low power (~3 watts) allows for simplified power supplies and cooling provisions
- Dual Ethernet for local area/backhaul separate networks for enhanced security applications such as wireless

In a 3.5" x 6" double sided form factor, the BT-101A offers a complete processing solution including video displays, Ethernet, USB, Audio, and I2C interfaces in a single robust low power module.

BLOCK DIAGRAM:



The BT-101A is powered by the Freescale MPC8247 PowerQuicc II processor. A System-On-Chip device, the MPC8247 provides a PowerPC 603e embedded core, along with a RISC based Control Processor Module (CPM) to manage I/O activities. At a maximum speed of 400 MHz, the processor provides up to 315 MIPS performance. Supporting to PowerQuicc is a memory subsystem, Video Controller, and USB Root/Hub controller.

Supported by all popular software development tools, the PowerPC 603e core offers excellent performance including 16 Kbyte primary instruction and data caches, full memory management unit, and floating point. Separate local bus for memory and PCI bus for peripheral access allows for concurrent program execution with I/O operations.



I/O FOR YOUR APPLICATION:

Slightly larger than an IEEE 1386 standard PMC module, the BT-101A is designed as a compute node supporting common processing I/O on card. The local I/O interfaces are presented to an IEEE 1386 standard PMC interface on the bottom of the module, and a video interface on the top side. Most applications will require a custom adapter module for either or both of these interfaces to match the I/O requirements precisely. The PMC interface allows custom I/O devices to be interfaced directly to the processor through the familiar PCI bus, while on card I/O's are available at the JN4 connector. Add Serial, Ethernet, and USB connectors and go! On card interfaces include one Ethernet, one USB, and one analog video, with the remainder on the PMC or top side interface connectors.

ETHERNET INTERFACES:

BT-101A supports two independent 10/100 BaseT interfaces for networking. On board MACs allow interface through the JN4 connector with a standard transformer and LEDs residing at the physical connector. Included in the PowerQuicc Ethernet controllers are extensive support for a variety of communications security protocols and encryption systems, allowing the BT-101A to support a variety of wireless networking protocols.

MEMORY SUBSYSTEM:

BT-101A memory supports two independent banks of FLASH allowing from 8 Mbytes up to 256 Mbytes of NOR Flash devices to be installed. 32-bit width allows optimal performance. Each bank may be independently write protected with a jumper. The boot bank includes user code as well as the U-Boot startup for the Linux Kernel. The File Bank is configured as the file system for Linux. Main SDRAM is provided as a single 144-pin SODIMM module, allowing up to 512 Mbytes of synchronous memory. An optional EEPROM may be used in applications where power fail recovery is necessary.

VIDEO DISPLAY:

The BT-101A uses the Silicon Motion SM-722 video controller adapter, interfaced via the on card PCI bus. The SM-722 supports one or two independent displays, configurable from 320x200 up to 1280x1024 resolutions. A single RGB output DAC is standard, a second is optional. Through the optional Top Side video adapter, the SM-722 pixel bus is available, allowing interface to virtually any LVDS flat panel via an appropriate encoder. PanelLink is supported standard by the SM-722.

USB:

The BT-101 includes a high speed USB2.0 root/hub interface for up to five USB devices. Intended for use in peripherals as well as mass storage (USB FLASH) applications, the interfaces are capable of operating at high speed 480 Mbps USB rates. One USB interface is available on the BT-101A with a connector, one on the top side video interface, and three on the PMC interface.

SERIAL PORTS:

Three serial ports from the MPC8247 are available on the PMC interface, supporting RS-232C standard interface levels. The MPC8247 offers support for a wide range of protocols and data rates, independently selectable for each port. The flexible serial port controllers in the MPC8247 support a wide variety of current and legacy serial port protocols, complete with on chip DMA and interrupt management

AUDIO:

The BT-101A includes an AC-97 compliant stereo CODEC. Audio line level input and outputs are available at the PMC connector.

SOFTWARE SUPPORT:

The BT-101A standard firmware includes comprehensive power on diagnostics, as well as boot directly into the Debian release Linux Kernel. USB interfaces support FLASH drives for code load and data storage in the standard release, as well as typical video display options and user interface devices. QNX and VxWorks board support packages are planned to address real time application requirements.