

## Tiny-PPC837

High Performance PowerPC based  
PCI/104-Express Communications Controller



**Advanced Micro  
Peripherals**

THE EMBEDDED VIDEO EXPERTS

The Tiny-PPC837 is a highly integrated PowerPC based controller board optimized for extreme, high performance, and mission critical systems. The Tiny-PPC837 is powered by the 667MHz MPC8377E PowerQUICC II Pro embedded processor, offering two Gigabit Ethernet ports with dual PCI-Express controllers.



The Tiny-PPC837 is an industry standard PCI/104-Express form factor and offers both PCI Express and traditional 32bit PCI interfaces. The Tiny-PPC837 supports up to 2Gbytes of DDR DRAM and an on-board 2Gbyte solid state Flash drive for application and data storage. Off board data storage can be achieved using either the USB 2.0 port or the high speed SATA drive interface.

**PRELIMINARY INFORMATION (Rev A.01)**  
Subject to change without notification

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High-performance

PowerPC based

Solidly constructed

Versatile

Design



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The Tiny-PPC837 is currently supported by embedded Linux. VxWorks and other OS support can be made available on request



## Applications

Industrial Automation Controller  
Portable Test Equipment  
Mission computers  
Backbone communication routers  
Point-of-sale and Kiosk applications  
Security, Transportation, Telematics  
Embedded Internet/Intranet Appliance  
Windows, Linux, QNX, VxWorks Support  
Rugged Harsh Environment Applications

Extended  
temperature  
and  
conformal coating  
options  
for tough  
environments

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## Features

- 667MHz MPC8377E PowerQUICC II processor
- Integrated security encryption accelerator
- Soldered BGA DDR2 SDRAM
- Soldered PATA NAND Drive
- Dual integrated Gigabit Ethernet ports
- Standard SATA I/II compatible interface
- Enhanced Secured Digital Host Controller (eSDHC)
- Two serial ports (RS-232 and RS-422/485)
- PCIe/104 connector offering four x1 PCIe links (500Mbytes/sec per link)
- 32 bit PCI expansion via standard PCI-104 expansion connector and mini PCI port
- Software support under Linux and VxWorks (Optional)

PowerPC based

Dual Gigabit Ethernet  
Ports

Support PCI-104,  
mini PCI, and  
PCIe/104

peripheral modules

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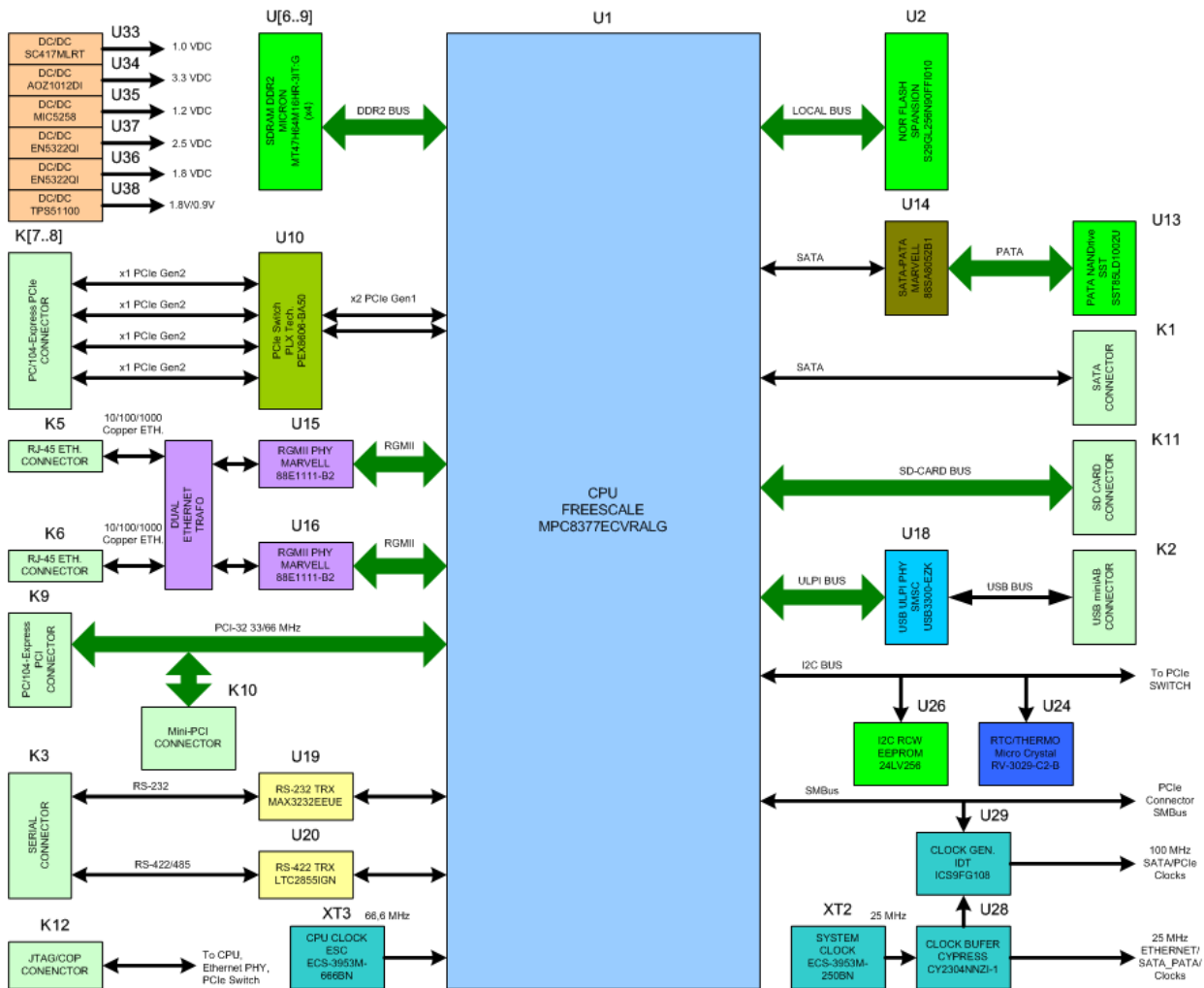
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# Operation Summary



Tiny-PPC837 Block Diagram



### Processor

MPC8377E PowerQUICC™ II Pro Processor  
e300c4s core (32KB I-cache and 32KB D-cache)  
One floating point unit & two integer units  
133 MHz 32-bit local bus  
Integrated power management controller  
Optional encryption acceleration engine

### Main Memory

Soldered 512MBytes DDR2 SDRAM (Up to 1GB)  
Support for up to 400-MHz data rate  
Support for up to 32 simultaneous open pages  
On-the-fly power management using CKE

### On-board Storage

Soldered PATA NANDrive 2GB (Up to 4GB)  
On SATA interface through SATA-PATA converter

### Network

Two Gigabit Ethernet ports  
10/100/1000 Auto-negotiation  
RGMII PHY 88E1111-B2  
Support for Wake-on-Magic Packet™

### Peripherals

Standard SATA I/II compatible interface  
1 x RS-232  
1 x RS-422/485 serial ports  
Mini-AB USB 2.0 Port  
Enhanced Secured Digital Host Controller

### PCI/104-Express Bus

Stackable 156-pin PCIe bus connector  
Four PCI Express x1 Lanes  
SMBus

### PCI-104 Bus

133MB/sec bus bandwidth  
PCI-104 bus master/initiator  
Up to 4 Bus master add-on cards capable  
3.3V or 5V PCI bus signalling

### mini PCI Bus

133MB/sec bus bandwidth  
PCI-104 bus master/initiator

### Power

+5V Power Supply

### Physical

PCI/104-Express stackable card form factor.  
Standard 3.775" x 4.05"  
Passive cooling

### Environmental

Operating temperature at 0°C to 60°C  
(-40°C to +85°C -EXT option)  
Relative humidity 5% to 95% non-condensing  
(optional conformal coating)

### Miscellaneous

Single +5V supply

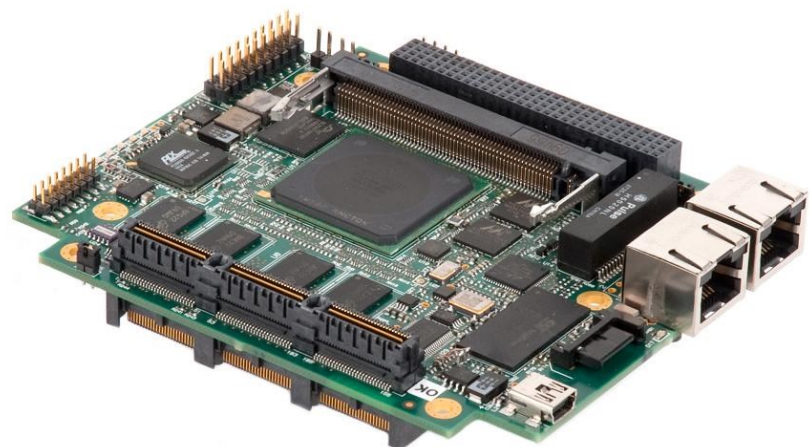
### Software Support

Linux  
VxWorks and others on request

### Ordering Information

Tiny-PPC837-666/512-2G  
MPC8377E PowerPC SBC (0 to 60°C)

Tiny-PPC837-666/512-2G-Ext  
MPC8377E PowerPC SBC (-40 to 85°C)



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