

# Katana<sup>®</sup> PPB

## Processor Blades

Embedded Computing for  
Business-Critical Continuity<sup>™</sup>

### Real-time processing blade in a single-slot AdvancedTCA form factor

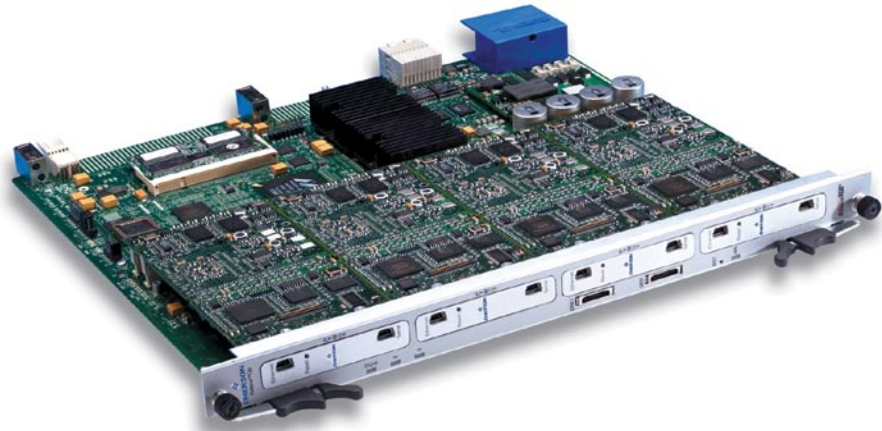
- Up to six PowerPC 7448 processors
  - ▲ Dual processors running up to 1 GHz on the baseboard
  - ▲ Up to four processors running up to 1 GHz on four modules
- ATCA PICMG 3.1 Option 3
- Up to 1GB DDR SDRAM with ECC in SO-DIMM package on the baseboard and up to 512MB DDR SDRAM on each processor module
- 128MB flash memory on the baseboard and total of 256MB flash memory on four modules
- Managed L2/L3 Gigabit Ethernet Switch
- Dual 10/100/1000 Ethernet with access to on-board switch fabric
- Dual 10/100 Ethernet front panel access per module
- IPMI controller with redundant intelligent platform
- Carrier Grade Linux and VxWorks support
- Quality assured by over 35 years of design experience and a TL 9000 and ISO 9001:2000 certified quality management system. (FM 26789)

The Katana<sup>®</sup> PPB from Emerson Network Power is a high-speed multiprocessor AdvancedTCA<sup>®</sup> (ATCA<sup>®</sup>) telecom blade optimized for control and packet processing applications such as WAN access, SS7/SIGTRAN signaling, media gateways, wireless base station controllers, radio network controllers and softswitches. It is equipped with up to six Freescale PowerPC<sup>®</sup> MPC7448 processors, two processors on the base board and up to four processors mounted on four processor PMC (PrPMC) modules. Each processor complex has its own DRAM and flash memory. The KatanaPPB features a high-speed PICMG<sup>®</sup> 3.1 compliant ATCA interface with ten Gigabit Ethernet (GbE) channels, two base channels, plus two fabric channels with four ports each.

To optimize control performance and packet processing throughput, the KatanaPPB employs a versatile multiprocessor interconnect with separate control and data planes. The product uses a local PCI bus to interconnect all six processors for the control plane. The on-board GbE switch eliminates the packet routing processing overhead of traditional data plane architectures.

The KatanaPPB features a PICMG 3.0 Intelligent Platform Management Interface (IPMI version 1.5 with ATCA extensions). This interface, which incorporates dual I<sup>2</sup>C based Intelligent Platform Management Buses (IPMB), enhances system management by making it easy for shelf management controllers to monitor, control and exchange information with the KatanaPPB.

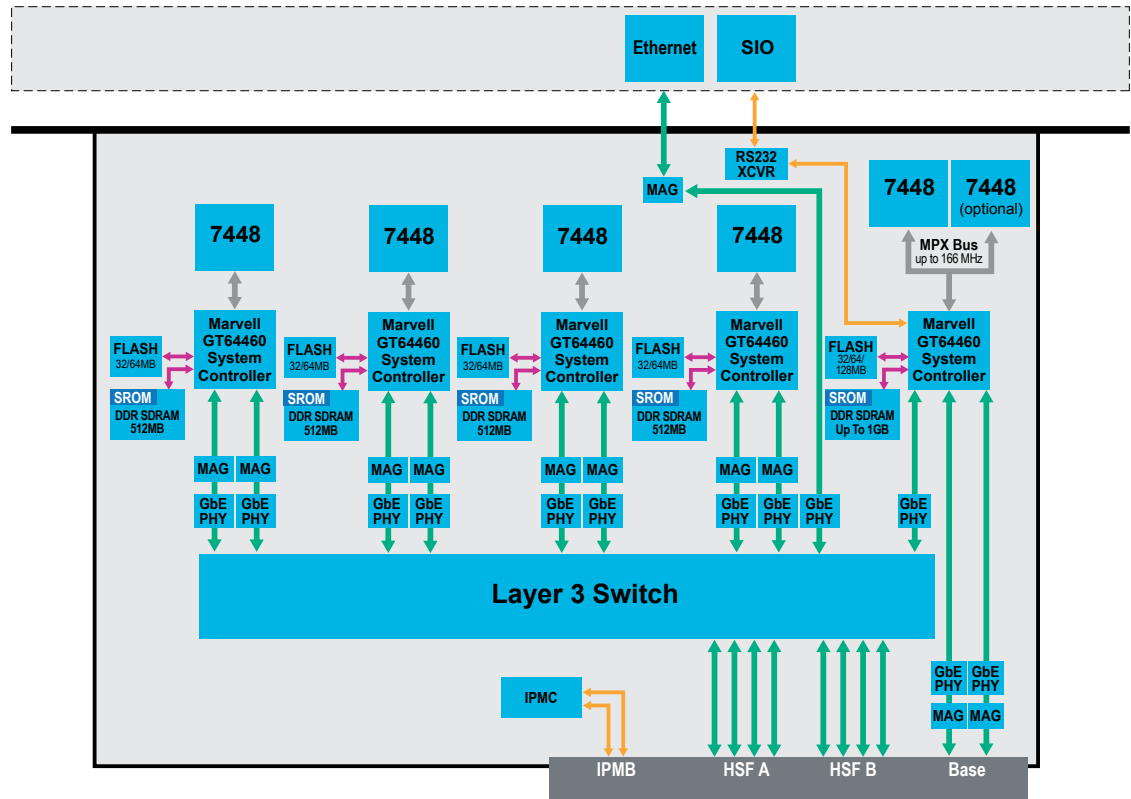
Katana is a Japanese word for 'sword'. Emerson's Katana family of processor blades embodies the power and swiftness of this sword.



**AdvancedTCA<sup>®</sup>**

  
**EMERSON**<sup>™</sup>  
Network Power

## Block Diagram



## Specifications

### PROCESSOR

#### Baseboard

- Single or dual PowerPC MPC7448 processors running at up to 1 GHz, each with:
  - ▲ 133 MHz MPX bus
  - ▲ 64-bit data bus
  - ▲ 36-bit address bus
  - ▲ 32K I/32K D L1 cache
  - ▲ 512KB L2 cache with ECC
  - ▲ AltiVec vector unit

#### Modules

- Up to four PowerPC MPC7448 processors running up to 1 GHz
- 32-bit address bus, 64-bit data bus
- L1 cache
  - ▲ 32K, 32-byte line, 8-way set associative instruction and data cache
  - ▲ Single-cycle cache access

- 1 MB on-chip core speed L2 cache with ECC for 7448 configuration
- AltiVec vector unit

### MEMORY

#### Baseboard

- SDRAM
  - ▲ Up to 1GB SDRAM with Error Checking and Correction (ECC)
  - ▲ Dual data rate (DDR) operation clocked at 166 MHz
  - ▲ Modular and upgradeable 200-pin SO-DIMM packaging
- User flash
  - ▲ Redundant auto boot failover
  - ▲ 64 or 128MB flash configurations
  - ▲ True Flash File System (TFFS) support under VxWorks
  - ▲ Flash Architecture NOR
- Serial EEPROM
  - ▲ 64KB Serial EEPROM on I<sup>2</sup>C bus for configuration data

#### Per Module

- SDRAM
  - ▲ 512MB SDRAM with ECC
  - ▲ Modular and upgradeable SODIMM packaging
  - ▲ 166 MHz operation
- Flash
  - ▲ Redundant auto boot failover
  - ▲ 32 or 64MB flash configurations
  - ▲ Flash Architecture NOR

#### I/O

##### Baseboard

- Ethernet – Embedded System Area Network (ESAN)
  - ▲ AdvancedTCA (PICMG 3.1) Option 3
  - ▲ Dual 1000 Base-Tx Base interface for control plane
  - ▲ Octal 1000 Base-Bx high speed serializer/deserializer (SerDes) ports for fabric interface
- JTAG/COP
  - ▲ JTAG/COP processor debug interface
  - ▲ IEEE 1149.1 compatible
- Master/Slave I<sup>2</sup>C bus connecting:
  - ▲ Serial EEPROMs
  - ▲ Real-time clock device w/supercap backup

#### Per Module

- Ethernet
  - ▲ Two 10/100/1000BaseT Ethernet ports with access to onboard switch fabric
  - ▲ Single 10/100BaseTX Ethernet port with front bezel access
- Serial ports
  - ▲ RS-232 asynchronous serial ports via front
- I<sup>2</sup>C – Master or slave mode
- General purpose timers
  - ▲ Four 32-bit counter/timers
  - ▲ 32-bit watchdog timer
- Real-time clock
  - ▲ I<sup>2</sup>C
- GPIO
  - ▲ Eight TLL-compatible lines on P14

#### LEDS AND SWITCHES

##### Baseboard

- ATCA Hot Swap front panel LED
- ATCA LED1 Failure/Out of Service
- ATCA LED2 User Defined

- ATCA LED3 User Defined
- Recessed front panel reset switch

#### Per Module

- Recessed front panel reset switch

#### MANAGEMENT

- Intelligent Platform Management Controller (IPMC)
- Dual redundant IPM Bus interfaces (IPMB-A/B)
- Supports Intelligent Platform Management Interface (IPMI) w/ PICMG 3.0 enhancements
- Intelligent Platform Management features:
  - ▲ E-Keying
  - ▲ Payload power control
  - ▲ Payload reset
  - ▲ Temp/voltage monitor
  - ▲ FRU data structure

#### PHYSICAL CHARACTERISTICS

- ATCA PICMG 3.0 form factor
- Dimensions: 322.25 mm W x 280 mm D x <30.48 mm H (not including front panel, handles)
- Power requirements: 170W estimated typical with four modules
- Operating range: 0 to 55°C ambient, not to exceed 85% relative humidity (non-condensing)
- Storage range: -40°C to 105°C, not to exceed 95% relative humidity (non-condensing)
- Altitude: 0 to 4,000 meters above sea level

#### AGENCY COMPLIANCE

- 60950 UL/CSA/IEC/AS/NZS
- FCC Part 15 (US)
- ICES 003, (Canada)
- NEBS: Telcordia GR-1089 and GR-63 applicable sections
- EN55022
- EN55024
- EN300386

#### SOFTWARE SUPPORT

- Bootloader monitor with power-on self test
- Board support package for Wind River VxWorks
- Board support package for Carrier Grade Linux

## SOLUTION SERVICES

Emerson Network Power provides a portfolio of solution services optimized to meet your needs throughout the product lifecycle. Design services help speed time-to-market. Deployment services include global 24x7 technical support. Renewal services enable product longevity and technology refresh.

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