

DSP230

Quad Freescale MPC864xx Dual Fabric VPX Multiprocessor

Features

- Four Freescale 8641D SoC nodes
- Low power MPC8640D ready!
- Eight banks DDR2 SDRAM
- Serial RapidIO switch to all nodes and P1
- Gen-2 PCIe switch to all nodes, XMC site, PCI-X PMC & optional P2 connector
- One PMC (PCI-X) /XMC (VITA 42.3) site
- Gigabit Ethernet switch to all nodes, backplane and front panel (air cooled only)
- Node management controller
- Eight serial ports with four COM ports to the front panel (air cooled build only)
- Rugged 6U VITA 46.3 form factor for air, spray and conduction cooled systems

Software

- AXIS Advanced Multiprocessor Integrated Software
- GE Fanuc Built-In-Test (BIT) for PowerPC®
- BSPs for LynxOS® 5.0 & VxWorks® 6.6
- Enhanced BSP with full featured Serial RapidIO driver support

The new DSP230 raises the standard for COTS multiprocessors aimed at rugged defense and aerospace applications such as deployed Radar, Sonar, SIGINT and image processing.

Building on the original dual fabric, architecture, our updated DSP230 adds support for 8640D, front panel I/O and a PCI-X enabled PMC site.

The Freescale MPC8640D System on Chip (SoC) e600 AltiVec multi-core platform is a low power, pin and code compatible version of the MPC8641D.

Available in air, spray and conduction cooled builds, the DSP230 quad 864xx 6U VPX multiprocessor supports concurrent, any node to any node, data movement over PCIe and sRIO.

The PCI-X PMC and XMC bridges to all four processor nodes via the onboard PEX8648 GEN-2 48 lane PCIe switch. An additional PCIe port is routed to the optional P2 connector providing an off-board port if required.

DSP230 is designed for use with our SBC610 MPC864xx single board computer, PEX440 dual slot XMC carrier and XMCV5, with the Xilinx Virtex5 mezzanine coprocessor providing maximum flexibility to system architects.

Layered software support for BIT and COTS real-time operating system Board Support Packages (BSPs) is delivered via our standard, yearly SW maintenance agreements that provide releases, updates and support for basic and enhanced support packages.

In addition, DSP230 benefits from our AXIS Advanced Multiprocessor Integrated Software suite of fully integrated modules for system development, test and deployment.

AXISView provides an intuitive GUI for system visualization and productivity tools that greatly reduce development time, risk and time to market.

AXISLib VSIPL and RSPL AltiVec optimized math and function libraries provide maximum performance for a wide range of DSP applications.

AXISFlow supports high throughput, low latency, inter processor communication (IPC) over PCIe, Serial RapidIO and Gigabit Ethernet between nodes to maximize performance and increase flexibility in the design of the most demanding signal and data processing applications.

DSP230 Quad Freescale MPC864xx Dual Fabric VPX Multiprocessor

Specifications

Form Factor

- 6U VITA 46 or VITA 48/REDI

Processors

- Four MPC 864xx single or dual core @ 1 GHz

Memory

- Eight banks DDR2 SDRAM
 - 512 MBytes per bank (standard)
 - 1 GByte per bank (future)
- Two banks of 256 MBytes FLASH

Dual Fabric Architecture

- Serial RapidIO switch
 - Four x4 ports to P1
 - One x4 port to each 864xx
 - Up to 3.125 GHz operation per lane
 - Full featured sRIO driver with dynamic device discovery, and enumeration, broadcast and multi-cast support
- PCIe switch
 - 1 x8 port to each 8641D node
 - 1 x8 port to XMC site
 - 1 x4 port bridged to PCI-X PMC
 - 1 x4 port to optional P2 connector

Network

- Gigabit Ethernet switch
 - Two ports to each 864xx
 - One or two ports to backplane
 - One port to Front panel (air cooled builds only)

Node Management Controller

- Inter-node and inter-board
 - Time stamp, synchronization
 - Mail boxes, semaphores

Serial

- Eight serial ports to P6 or
 - Four RS232 to front panel (air cooled builds only)
 - And four RS232 or RS422 to P6

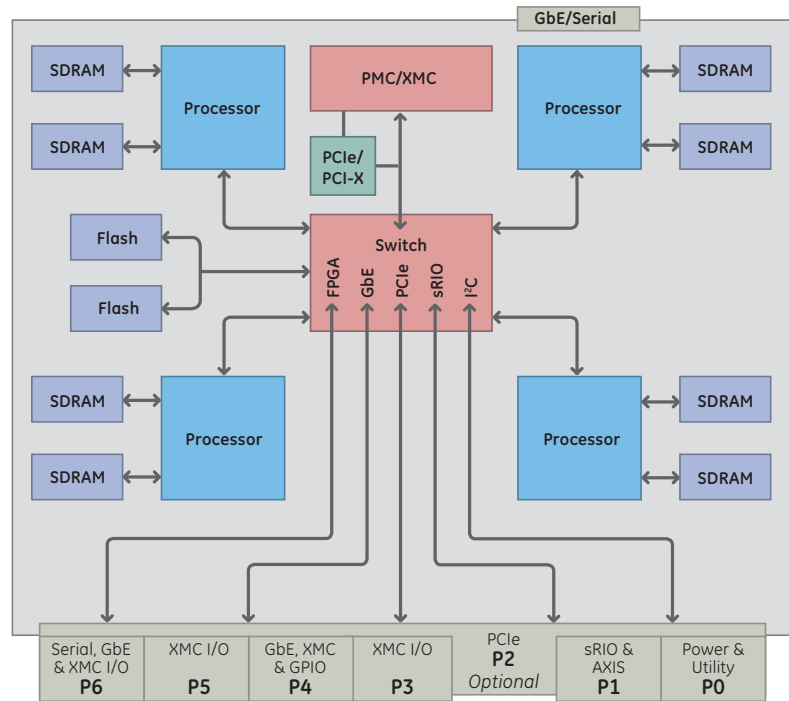
Ruggedization

- Build levels 1 to 6

Software

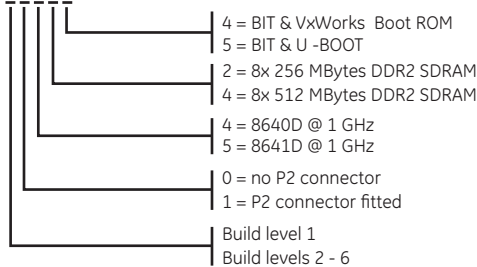
- BIT for PowerPC®
- BSPs for LynxOS 5.0 & VxWorks 6.x with advanced sRIO driver support
- AXIS Advanced Multiprocessor Integrated Software

Block Diagram



Ordering Information

DSP230-1 0 5 4 4 = build to stock variant



About GE Fanuc Intelligent Platforms

GE Fanuc Intelligent Platforms is a leading global provider of embedded computing solutions for a wide range of industries and applications. Our comprehensive product offering includes many types of I/O, single board computers, high performance signal processors, fully integrated, rugged systems including flat panel displays, plus high speed networking and communications products. The company is headquartered in the U.S. and has design, manufacturing and support offices throughout the world. Whether you're looking for one of our standard products or a fully custom solution, GE Fanuc Intelligent Platforms has the breadth, experience and 24/7 support to deliver what you need. For more information, visit www.gefanuc.com.

GE Fanuc Intelligent Platforms Information Centers

Americas:
1 800 368 2738 or 1 703 263 1483

Asia Pacific:
+81 3 5544 3973

Europe, Middle East and Africa:
Germany: +49 821 5034-0
UK: +44 1327 359444

Additional Resources

For more information, please visit the GE Fanuc Intelligent Platforms web site at:

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Open Architecture, COTS Multiprocessor Solutions

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Universal Interface Layer (UIL)
Board Support Package (BSP)
Built-in-Test (configurable POST)
I/O, SBCs, Multiprocessors, Fabric switches

