Mercury Computer Systems, Inc.
Freescale Alliance Partner

Mercury Computer Systems is a leading provider of computing systems and software for data-intensive applications that include image processing, signal processing and visualization. With a strong commitment to innovation, our expertise in algorithm optimization, systems development and silicon design is blended with software application knowledge and industry-standard technologies to solve unique computing challenges. We work closely with our customers to architect solutions that have a meaningful impact on everyday life, such as: making wireless communications more efficient, detecting aneurysms, identifying security threats, discovering oil, developing new drugs and visualizing virtually every aspect of scientific investigation.

The migration from 2G to 3G wireless networks is pushing the limits of today's general-purpose processor technologies and interconnects. Provisioning for this new packet-oriented network is driving dramatic increases in compute density requirements. According to experts, the significant increase in the number of handoffs experienced in 3G packet networks requires a tenfold increase in computational power over 2G networks. Mercury can help with our high-performance multi-computer solutions that address the compute density and capacity challenges facing wireless system architects as they design the next generation of wireless networks.

Mercury Computer Systems AdvancedTCA® and AdvancedMC™ products based on processors from Freescale Semiconductor

Mercury Product	Freescale Processor	Function	Application	Form Factor	PICMG Compliance	BSP/Driver
Ensemble BSW-101 	Freescale MPC8548E PowerQUICC® III processor running at up to 1.0 GHz	RapidIO®/Gigabit Ethernet switch blade	Base stations, media gateways, radio network controllers	ATCA®	PIGMG 3.0 PICMG 3.5	Consult Mercury
Ensemble BCE-100 FPGA 	Freescale MPC8548E PowerQUICC III processor running at up to 1.0 GHz	Processing blade	Beamforming within SatComms, base stations, radar	ATCA	PIGMG 3.0	Consult Mercury
Ensemble MPQ-101 	Freescale MPC8548E PowerQUICC III processor running at up to 1.3 GHz	Control processor	Base stations, test and measurement, radio network controllers	AMC™ single-width, full height AMC	AMC.0	Consult Mercury
Ensemble MPC-102 	MPC8641D dual core e600 processor, built on Power Architecture™ technology, with each core operating up to 1.33 GHz	Processing blade	Base stations, wafer lithography, test and measurement	AMC single-width, mid and full height AMC	AMC.0	Consult Mercury

Computer Systems, Inc. MERCURY Challenges Drive Innovation™

freescale Alliance Member

Ensemble BSW-101

RapidIO®/Gigabit Ethernet switch blade

- Freescale MPC8548E PowerQUICC® III communication processor at up to 1.0 GHz
- 4 x Serial RapidIO® fabric interface
- Fabric interface:
  - Fifteen 1 x/4 x Serial RapidIO links
  - Base interface—sixteen 1000Base-T Ethernet ports
  - Control interface IPMB-A and IPMB-B links
- 23 channels of Gigabit Ethernet (GbE) via GbE switch
- 18-Port Serial RapidIO on-board non-blocking switching network
- Inter-chassis Ethernet and RapidIO communications via AdvancedMC™ (AMC) module

Ensemble BCE-100 FPGA

Compute blade

- Freescale MPC8548E PowerQUICC III communication processor at up to 1.0 GHz
- 9 x on-board FPGAs (Xilinx® Virtex™-4s)
- Fabric interface:
  - Eleven fabric 4 x channels at 3.125 Gbaud
  - Fabric endpoints implemented within the FX60/100 FPGAs
- Zone 3 interface:
  - Ten 4 x fabric channels at 3.125 Gbaud
  - Fabric endpoints implemented within the FX60/100 FPGAs
- Supports up to a 12-slot configuration
- IPMI peripheral manager

Ensemble MPQ-101

Control processor

- Freescale MPC8548E PowerQUICC III processor at up to 1.3 GHz
- 512 MB DDR2 SDRAM
- 128 MB flash memory
- 1000Base-X fiber SerDes interface over copper link Ethernet (Port 0)
- 1 x/4 x Serial RapidIO (Ports 4–7)
- Front-panel USB and GbE connector
- IPMI controller, firmware and IMPB links
- Linux® OS support

Ensemble MPC-102

Compute bade

- Freescale MPC8641D dual core processor, based on Power Architecture™ technology, at up to 1.33 GHz
- Up to 2 GB DDR2 SDRAM
- 128 MB NOR flash memory
- Switch-fabric options:
  - 1 x/4 x Serial RapidIO: AMC fat pipe Ports 4–7
  - 8 x, 4 x, 2 x, 1 x PCI Express®: AMC fat pipe Ports 8–11 and 4–7, not AMC.1 compliant
- Dual 1000Base-BX Ethernet connections:
  - AMC common option Ports 0–1
- Serial ATA (SATA) connection: AMC common option Port 2

Learn More: For more information about Freescale's ATCA/AMC reference designs and Freescale Alliance Partners for ATCA/AMC solutions, please visit **www.freescale.com/atca**.

For more information about Mercury Computer and these ATCA/AMC solutions, go to **www.mc.com**.

Document Number: AMCMERCURYFS
REV 1

freescale semiconductor