Hardware Reference Designs

for SBC8260 ATM

Wind River | *Reference designs*

Reference platform for preproduction design, prototyping, and evaluation

Wind River's SBC8260 ATM reference design is a single board computer (SBC) that allows development to begin before the hardware is available. This board offers a solid platform for both hardware and software engineers to use in evaluating and prototyping designs that closely parallel their final applications. The SBC8260 ATM also gives software engineers a live target on which to begin developing and testing application code.
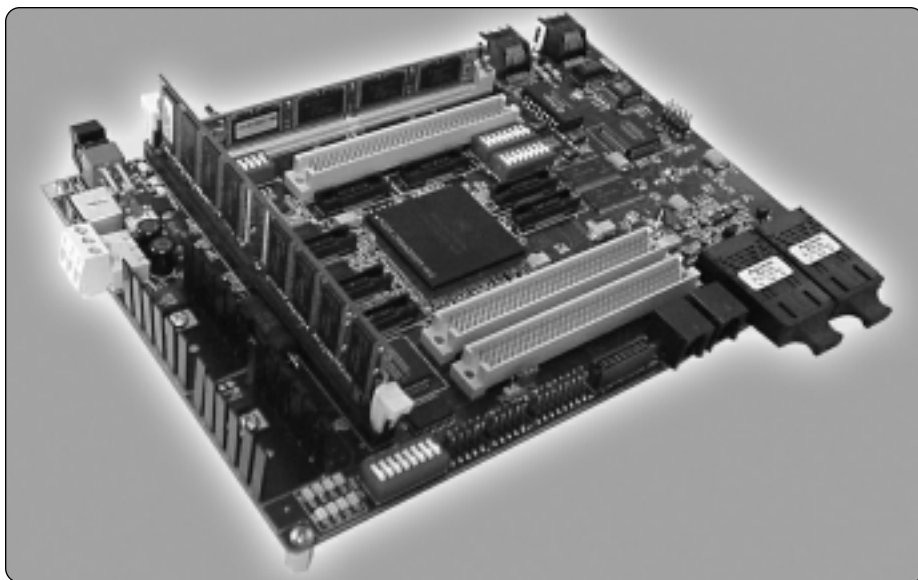
Like all Wind River's reference designs, the SBC8260 ATM comes with detailed schematics, board support package (BSP), visionBOOT boot loader, user documentation, and power supply.

The SBC8260 ATM employs the MPC8260 (PowerQUICC II™)-Motorola's latest high-end communications chip, featuring a high-speed PowerPC EC603e core and communications engine with the ability to process protocols at up to 710 megabits per second.

Wind River's SBC8260 ATM comes standard with 64MB of SDRAM and 4MB of flash. It is user expandable to 256MB of SDRAM and 16MB of flash. The SBC8260 ATM also has access to all of the processor's communications channels via industry standard headers and connectors.

Features
- 4MB flash (expandable up to 16MB)
- 64MB SDRAM (expandable up to 256MB)
- 8KB EEPROM controlled by CS5
- 2 communications ports (SMC1, SMC2)
- 10BaseT Ethernet on SCCI
- 10/100BaseT Ethernet on FCC2
- All CPM signals available on 3 DIN connectors
- Status LEDs, switches and controls
- 1MB on-board flash controlled by CS6
- 16MB SDRAM on local bus controlled by CS4
- visionBOOT boot loader
- VxWorks board support package
- Mictor headers for 60x bus and local bus Trace with LA Trace
- Multi-PHY ATM
- Dual SC fiber optic connections

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SBC8260 ATM BLOCK DIAGRAM

6xx Mictor Connectors

P1　P2　P3
P4　P5

603ev Control

603ev Address 32

603ev Data 64

PPC Bus

PowerQUICC II

Local /PCI Bus

Port A[0:31]　Port B[0:31]
Port C[0:31]　Port D[4:31]

64

/CS2
/CS3

64MB SDRAM Dimm Module

74LCX16244 Address Buffers

64

32

74LCX16245 Data Buffers　/DBUFEN

32　8

/CS1

4MB FLASH SIMM

/CS0　/CS6

8

1MB FLASH (on board)

/CS7

8

/CS5

8K EEprom

/HRESET
/SDRAS
/DQM_WE0
A30
A31

PQ2_Cntrl EPLD

/BCTL0
/PSDVAL
LED[0..7]

SW_OE　F_PDOE

USER SWITCHES　**FLASH DETECT**

F_PD[1..7]

/CS4

Local Control

18　Local Address

32　Local Data

P6　P7

Mictor Connectors Local Bus

16MB SDRAM (2) 4MB X 16

Communications Processor I/O

FCC1
ATM　S/UNI DUAL
PM5348 (two OC3 ports)

FCC2
MII　10/100 Base-TX
LXT972 (Intel)

SCC1
0 OHM
Ethernet　10 Base-TX
LXT905 (Intel)

SMC1
0 OHM
COM 1

SMC2
0 OHM
COM 2

PORTS A-D
USER I/O PORTS　*

＊ Denotes Header or Connector

Benefits

Experienced support

As a supplier of reference designs and hardware-assisted debugging tools for an array of microprocessors, Wind River has the experience to provide knowledgeable, responsive application and technical support for development projects.

Free detailed schematics

All Wind River reference designs come with free schematics in electronic format. Schematics give hardware engineers a solid design for use in building their own boards.

Tools integration

Wind River reference designs and hardware-assisted debugging tools are preintegrated. Every board has its own register files, so developers can immediately begin using all of Wind River tools.

Board support packages

Because even the best hardware design is useless without software support, Wind River provides the source code for board support packages available with VxWorks® 5.4 and VxWorks AE. Developers can fully utilize and modify the source code for current and future projects.

Accelerated early development

Firmware, hardware, and production test engineers can all take advantage of Wind River's reference designs. Firmware and hardware engineers can adapt Wind River's reference designs to their own, enabling them to reduce development time. Production test engineers can use the board and visionICE II/visionPROBE II debugging tools to design and prototype complex and efficient production algorithms before the custom hardware is prototyped.

Emulators for turnkey development

visionICE II and visionPROBE II JTAG emulators are designed to handle the full lifecycle of an embedded project. These tools offer JTAG-preconfigured hardware diagnostic tests, which are crucial for hardware bring-up phases. The features and fast download speed of visionICE II and visionPROBE II help shorten software engineers' projects.

visionBOOT

visionBOOT provides boot loading that can use TFTP downloading of an image from a flash file system, an HTTP server, or a disk. The flash file image includes a VxWorks image and a diagnostic script that can be used to test the board hardware. visionBOOT is built with the visionWARE software development suite, which can be purchased separately.

visionWARE automatically generates visionBOOT and diagnostics and can program flash and field programmable gate arrays (FPGAs).

Chip upgradibility

The 8260 processor is mounted on a BGA-to-PCA socket/adapter, which makes the chip easily removable and interchangeable.

ATM SAR driver (optional)

The ATM SAR driver is used to configure and control the CPM for AAL0, 1, 2, and 5. It can support multi-PHY and multi-Utopia bus (FCC1 and 2), has master-slave implementation, and supports both interrupt and polled modes.

EMBEDDED DEVELOPMENT SOLUTIONS

Fully integrated solutions

Wind River offers fully integrated hardware and software solutions designed for all phases of embedded development, from early board bring-up to debug and production/test. This tool suite includes reference designs with schematics and BSPs, software debuggers, hardware-assisted on-chip debuggers, compilers, and other software tools.

Hardware-assisted tools

Wind River's JTAG emulator tools include a high-performance debugging parallel cable for PCs (visionPROBE II) as well as a networked emulator complete with 10/100BaseT capabilities (visionICE II) for both PC and UNIX.

Hardware tools benefits

- Real-time target control via on-chip debugging
- High-speed binary downloads to target
- Built-in hardware diagnostics
- Flash memory programming
- Source-level debugging
- Statistical performance analysis
- Internal register configuration

Tornado integration

visionICE II and visionPROBE II are tightly integrated with the Tornado® development environment and enable core and optional Tornado tools to communicate with the target through JTAG. This provides board bring-up and debug support, crash diagnosis, as well as a fast download and debug channel, if Ethernet or serial channels are used.

RTOS independent

Wind River provides an extensive line of embedded development tools for all embedded real-time operating systems (RTOSs) including in-house RTOSs, Wind River RTOSs, and other commercial embedded operating systems. Published application program interfaces (APIs) support easy integration of Wind River tools with other embedded operating systems.

Source-level debuggers

Fully integrated with Wind River's hardware-assisted tools are source-level debuggers including visionCLICK, visionXD, and SingleStep™ with vision running on Windows and UNIX development hosts. In addition to point-and-click capability for major functions, these debuggers offer support for hardware, software, and complex breakpoints, a register configuration utility, built-in diagnostics, and complete run control.

Software tools benefits

- Intuitive graphical user interface
- Easy project configuration that reduces project start-up time
- RTOS API kit allows choice of third-party tools
- Tight integration with Wind River's full suite of embedded development tools
- Powerful register configuration utility to reduce register programming time
- Sophisticated compiler optimization technology with finegrained compiler control
- Kernel awareness for task-aware debugging of VxWorks, proprietary operating systems, and many third-party operating systems

The visionWARE developers kit

Wind River's visionWARE developers kit is designed for engineers developing software that interacts with and controls hardware. visionWARE extends JTAG emulator features with an application development framework that automatically generates a boot loader and a flash file system for custom boards that store and launch customer applications. It also generates a ready-to-run diagnostics program and target resident code to program advanced programmable devices, such as flash and FPGA, using a target Ethernet port.

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