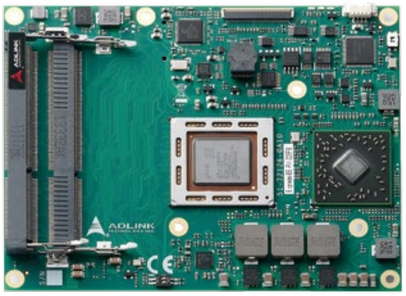
Express-BE

COM Express® Basic Size Type 6 Module with AMD® Embedded R-Series APU

Features

- AMD® Embedded R-Series APU with A77E Fusion Controller Hub
- Up to 16GB Dual Channel DDR3L at 1600/1333 MHz
- Three DDI ports and one LVDS port supporting 4 independent displays
- Seven PCIe x1, one PCIe x16
- GbE, four SATA 6 Gb/s, four USB 3.0 and four USB 2.0
- Supports Smart Embedded Management Agent (SEMA®) functions



Specifications

Core System

CPU

AMD® Embedded R-Series APU

RX-427BB 2.7GHz (3.6GHz boost), 35W (4C/8CU)
RX-425BB 2.5GHz (3.4GHz boost), 35W (4C/6CU)
RX-225FB 2.2GHz (3.0GHz boost), 17W (2C/3CU)

Memory

Dual Channel non-ECC 1600/1333 MHz DDR3L memory up to 16GB in dual SODIMM socket

Embedded BIOS

AMI EFI with CMOS backup in 8MB SPI BIOS

Expansion Busses

PCI Express x16 (Gen3) or 2x8 or 1x8 plus 1x4

6 PCI Express x1 (AB): lanes 0/1/2/3/4/5

1 PCI Express x1 (CD): lane 6

LPC bus, SMBus (system), I²C (user)

SEMA Board Controller

Voltage/Current monitoring, power sequence debug support, AT/ATX mode control, logistics and forensic information, flat panel control, general purpose I²C, failsafe BIOS (dual BIOS), watchdog timer and fan control

Debug Headers

40-pin multipurpose flat cable connector

Use in combination with DB-40 debug module

Provides BIOS POST code LED, BMC access, SPI BIOS flashing, power testpoints, debug LEDs

Video

GPU Feature Support

AMD® Radeon HD9000, supports 4 independent and simultaneous display combinations of DisplayPort, HDMI, LVDS monitors

HW acceleration decoder (UVD4.2), supporting H.264, MPEG2, VC-1, MPEG4 (DivX), WMV9, MVC

HW acceleration encoder (UVD4.2), supporting video conferencing, wireless display, H.264, SVC

Windows 8, Windows 7, Linux OS support

DirectX 11.1, DirectX 10.1, DirectX 10, DirectX 9 support

OpenGL 4.2 support

OpenCL 1.2, OpenGLES 2.0, OpenCV support

AMD® Eyefinity support

Digital Display Interface

DDI1 supporting DisplayPort / HDMI / DVI

DDI2 supporting DisplayPort / HDMI / DVI

DDI3 supporting DisplayPort / HDMI / DVI

LVDS

Single/dual channel 18/24-bit LVDS from eDP (two lanes)

Audio

Chipset

AMD® Audio Coprocessor integrated in R-Series APU

Audio Codec

Located on carrier Express-BASE6 (ALC886 standard support)

Ethernet

Interface: 10/100/1000 BASE-T connection

Intel® MAC/PHY

Intel® i210LM (MAC/PHY) Ethernet controller

Note: “build option” indicates an alternative BOM configuration to support additional or alternative functions that are not available on the standard product.
Be aware that these “build option” part numbers will need to be newly created and this will result in production lead times.

Specifications

I/O Interfaces

USB: 4x USB 3.0 (USB 0,1,2,3) and 4x USB 2.0 (USB 4,5,6,7)
SATA: 4 ports SATA 6Gb/s (SATA0, SATA1, SATA2, SATA3)
Serial: 2 UART ports COM1/2 with console redirection
GPIO: 4 GPO and 4 GPI

Super I/O

Supported on carrier if needed (standard support for W83627DHG-P)

TPM

Chipset: Atmel AT97SC3204
Type: TPM 1.2

Power

Standard Input: ATX = 12V±5% / 5Vsb ±5% or AT = 12V±5%
Wide Input: ATX = 8.5~20 V / 5Vsb ±5% or AT = 8.5 ~20V
Management: ACPI 4.0 compliant, Smart Battery support
Power States: C0, C1, C1E, C6, CC6, S0, S3, S5 , S5 ECO mode
(Wake on USB S3, WOL S3/S5)
ECO mode: Supports deep S5 mode for power saving

Mechanical and Environmental

Form Factor : PICMG COM.0: Rev 2.1 Type 6
Dimension: Basic size: 125 mm x 95 mm

Operating Temperature

Standard: 0°C to 60°C

Humidity

5-90% RH operating, non-condensing
5-95% RH storage (and operating with conformal coating)

Shock and Vibration

IEC 60068-2-64 and IEC-60068-2-27

HALT

Thermal Stress, Vibration Stress, Thermal Shock and Combined Test

Operating Systems

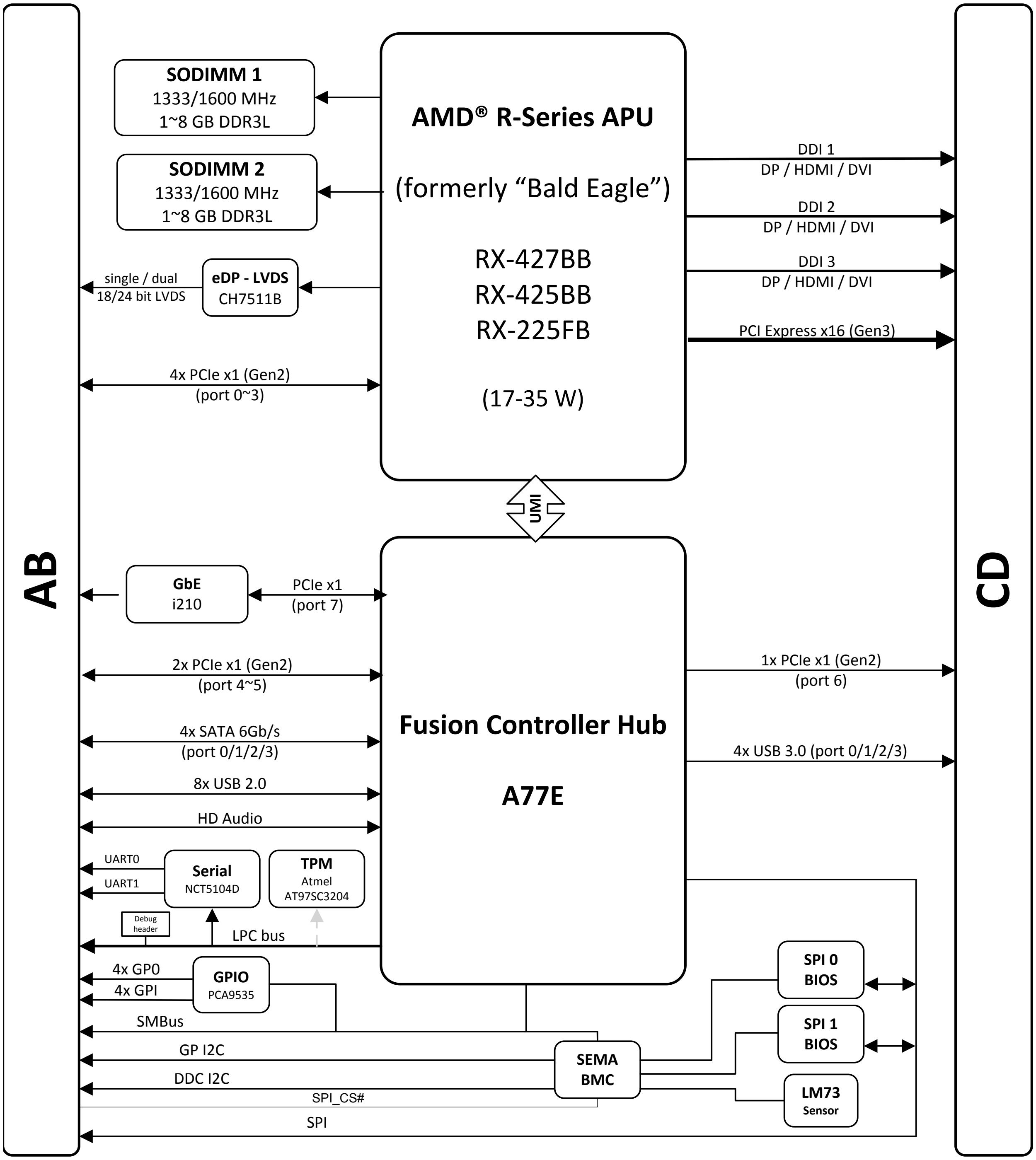
Standard Support

Windows 7/8 32/64-bit, Linux 32/64-bit

Extended Support (BSP)

WES7/8, Linux 32/64-bit

Functional Diagram



Ordering Information

- **Express-BE-RX-427BB**
  Basic COM Express® Type 6 module with AMD® R-Series APU RX-427BB at 2.7 GHz with Radeon HD9000 graphics
- **Express-BE-RX-425BB**
  Basic COM Express® Type 6 module with AMD® R-Series APU RX-425BB at 2.5 GHz with Radeon HD9000 graphics
- **Express-BE-RX-225FB**
  Basic COM Express® Type 6 module with AMD® R-Series APU RX-225FB at 2.2 GHz with Radeon HD9000 graphics

Starter Kit

- **COM Express Type 6 Starter Kit Plus**
  COM Express formfactor starter kit with Express-BASE6 board, power supply, and accessory kit

Accessories

Heat Spreaders

- **HTS-BE-B**
  Heatspreader for Express-BE with threaded standoffs for bottom mounting
- **HTS-BE-BT**
  Heatspreader for Express-BE with threaded standoffs for bottom mounting

Passive Heatsinks

- **THS-BE-BL**
  Low profile heatsink for Express-BE with threaded standoffs for bottom mounting
- **THS-BE-BTL**
  Low profile heatsink for Express-BE with threaded standoffs for top mounting
- **THSH-BE-BL**
  High profile heatsink for Express-BE with threaded standoffs for bottom mounting

Active Heatsink

- **THSF-BE-B**
  High profile heatsink with fan for Express-BE with threaded standoffs for bottom mounting