

Mini-ITX Form Factor

ADE-6291

AMD Embedded Merlin Falcon APU SoC, FP4 BGA 12-35W



Key Features

- Highly integrated SoC with multimedia and display features
- Up to 4 x “Excavator” cores
- AMD Radeon™ HD 10000 GPU
- 3 displays by DVI-D*2, DP or DVI-D*2, LVDS
- Up to 4K/2K Resolution
- Supports up to DDR4-2400 with ECC
- Supports 4 x COM

Specifications

CPU	AMD Embedded Merlin Falcon APU SoC, FP4 BGA infrastructure, 12-35W
	RX-421BD, 2.1GHz, 3.4GHz(Max), 4C, L2:2M, 12-35W
	RX-418GD, 1.8GHz, 3.2GHz(Max), 4C, L2:2M, 12-35W
	RX-216GD, 1.6GHz, 3.0GHz(Max), 2C, L2:1M, 12-15W
BIOS	AMI UEFI BIOS with 64Mb SPI Flash ROM
Storage	2 x SATA 3.0 (1 x SATA, 1 x mSATA)
I/O Controller	IT8785E-I/CX
System Memory	Support dual channel 2133/2400 DDR4 memory with ECC 2 x U-DIMM 288 pin sockets
	Max. up to 16 GB memory
Watchdog Timer	Reset; 1 sec.~255 min. and 1 sec. or 1 min. / step
Wake On	Wake On LAN, Wake On Time, Wake On USB, Wake on ring
H/W Status Monitor	Monitoring CPU and system temperature, voltage status & fan speed
Battery	BR2032, 220mAh
Expansion	One PCIe x8 slot , support PCIe Gen3
TPM	Reserve LPC pin header for TPM module

External I/O (Rear Side)

LAN , USB	2 x RJ-45 LAN Port (with two LED indicators) + dual USB3.0 (Max.: 900mA output each port)
	2 x USB2.0 connector (Max.: 500mA output each port)
Audio	3 x Audio Jacks for MIC-input, Line-out and Line-input
DisplayPort	1 x DisplayPort support 3840 x 2160 resolution @ 60 Hz (DP1.2)
DVI	2 x DVI-D (Single Link) support 1920 x 1200 resolution @ 60 Hz
COM	1 x RS-232 D-sub 9-pin male

Internal I/O

SATA	1 x SATA3.0 (6 Gb/s) with lockable connector, 1 x mSATA slot
PC Buzzer	Standard PC buzzer on board
USB	1 x (1 x 4) 2.0mm wafer , supports 1 x USB 2.0 (Max.: 500mA output)
GPIO	2 x (2 x 5) pin header for programmable 8 in /8 out (3.3V CMOS)
	*No signal reverse/direction change on GPIOs when system wake up from S0 or go to S0

Fan Power	2 x (1 x 4) pin-header, for APU & System fan with PWM function
CMOS Clear	1 x (1 x 3) pin-header
Audio	1 x (2 x 10) box-header Line-in, Line-out, MIC, Aux in, Center and Surround (5.1ch output required)
Front Panel	1 x (2 x 5) pin-header (Power on, reset, Power LED, HD LED)
COM	3 x (2 x 5) box header (COM2~COM4:Full)
LVDS	1 x (2 x 20) 1.25mm pin-header for 24-bit dual channel with brightness control

Graphic

Graphics Controller	AMD Radeon™ HD 10000 GPU Support 3 independent displays
Display Interface	Three displays by DVI-D*2, DP or DVI-D*2, LVDS
	• DP (3840x2160)
	• DVI-D (1920 x 1200) • LVDS (1920 x 1200)
DP to LVDS Controller	Parade PS8625

Ethernet

Controller	2 x Realtek® RTL8119-CG
Interface	IEEE 802.3 10/100/1000 BASE-T

Audio

HDAC	Realtek® ALC888S-VD2 High Definition Audio Codec
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Power

Power-input	4-pin 12V DC power connector (Max.:15A with fuse protection) Place connector near to rear IO coastline.
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Operating systems

Windows® 7, Windows® 10, Ubuntu 14.04

MB Environments / Certification

Compliance	ROHS , WEEE
Operating Temperature	0°C~60°C (32°F~140°F)
Storage Temperature	-20°C~80°C (-4°F~176°F)
Operating Humidity	10%~90% relative humidity, no condensing
Dimension	6.69" x 6.69" (170mm x 170mm), 8 layers PCB
EMI Protection	CE, FCC Class-B