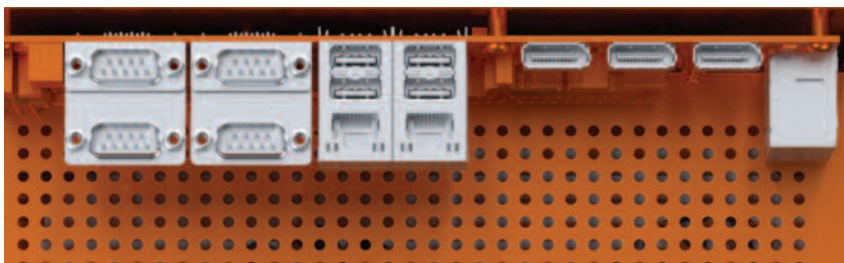


Quixant

Think outside the box



QX-60 PINNACLE OF THE QX SERIES

The QX-60 is a complete PC based gaming platform designed to drive pay to play gaming machines. It has a comprehensive feature-set designed to address all the requirements of running the latest generation of gaming machines.

- Supports 4K Ultra HD monitors
- AMD Embedded R-Series APU SoC with integrated AMD Radeon™ HD 10000 Series graphics with third generation GCN architecture
- Optional AMD Radeon™ E9171 discrete GPU with 4GB GDDR5 dedicated video memory
- Advanced PCI Express® gaming logic & NVRAM



High performance APU

Dual or Quad-core AMD Embedded R-Series SoC processors clocked at up to 2.1GHz (Max Boost Frequency up to 3.4GHz) and AMD Radeon™ HD 10000 integrated graphics drives three independent monitors. The AMD Embedded R-Series SoC integrates advanced hardware acceleration for 4K video decoding & encoding acceleration.

Optional AMD Radeon™ E9171 discrete graphics

The QX-60 can be configured with an optional AMD Radeon™ E9171 discrete embedded graphics processor. This adds 4GB of dedicated GDDR5 video memory and works alongside the integrated AMD Radeon™ HD 10000 integrated into the APU to enhance graphic performance and increase the maximum number of screens to a total of eight.

Quixant Advanced PCI Express® Gaming Hardware

Up to 32MBytes of fast, 64-bits battery backed NVRAM in four physical banks. Hardware mirroring and CRC operations. Powerful security features. Up to 64 interrupt driven digital inputs & outputs. Multiple layers of security and intrusion detection.

Advanced Security Features

Quixant hardware security engine incorporating PCI Express® AES 128/256bit hardware encryption/decryption engine, hardware RSA 2048 engine, optional embedded TPM, built-in unique serial number and SHA-1 acceleration engine.

Complete Software Suite

Device drivers, gaming protocols including SAS, secure customizable BIOS. Full support for Windows Embedded (7, 8 and 10) and Linux.

Long supply lifetime

Embedded design with 5 year supply lifetime from launch.

Market compliance

Meets the requirements of GLI-11 and all major global gaming jurisdictions.



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QX-60 General Features

APU

AMD Embedded R-Series SoC (formerly codenamed "Merlin Falcon") core architecture:

- Dual or Quad 64-bit Excavator cores
- Core frequencies up to 2.1GHz (up to 3.4GHz with boost)
- Up to 4MB L2 cache (2MB per code pair)
- AVX & AVX2, AES, SSE4.1 & 4.2, XOP & FMA4 instructions
- Low power (35W max TDP) design

Advanced integrated AMD Radeon™ HD 10000 Series graphics:

- Integrated graphics performance – up to 512 Shaders, 819GFLOPs
- Support for up to three independent displays from the APU
- Three DP++ interfaces support DisplayPort 1.2, DVI & HDMI monitors
- Daisy-chain monitors using DisplayPort MST technology
- DirectX® 12, OpenGL™ 4.4, OpenCL 2.0, Mantle, Vulkan™ and Direct Compute compatible
- UVD6 Hardware Decode of 4K H.265, H.264, VC-1, MPEG-2 & DivX
- VCE Hardware Encode of 4K H.264
- HSA (Heterogeneous System Architecture) support with hUMA & hQ technology
- AMD Eyefinity technology drives up to 3 displays

Main Memory

Supports 2 x DDR4-24000 (PC4-19200) SODIMM sockets

Up to 32GBytes main memory, 128-bit bus

Optional Discrete Graphics

AMD Radeon™ E9171 Embedded GPU

- Additive to APU GPU (AMD Radeon™ HD 10000 Series integrated graphics)
- Combines the two GPUs to enhance performance
- 4GB GDDR5 dedicated video memory
 - PCI Express® Gen 3 x 8 interface
- Support for up to five independent displays from the GPU (1 through MST)
- Support for DisplayPort 1.4, DVI & HDMI monitors
- Daisy-chain monitors using DisplayPort MST technology

E9171 Features:

- AMD Eyefinity technology drives up to 5 displays
- DirectX® 12, OpenGL™ 4.5, OpenCL 2.0, VCE 2.0

AMD Accelerated Parallel Processing (APP) technology

- OpenCL 2.0, Mantle, Vulkan™ and DirectCompute 11 support
- UVD6 Hardware Decode of 4K H.265, H.264, VC-1, MPEG-2 & DivX
- VCE Hardware Encode of 4K H.264

Communication Interfaces

8 x PCI Express® QxCom™ serial ports

- 16550 compatible
- 9-bit protocol support
- Hardware timestamping of received data
- RS232, RS485, ID003, TTL and dual ccTalk interfaces

2 x PCI Express® Gigabit LAN controllers

2 x USB3.0 (Front Panel)

11 x USB2.0 ports (4 internal, 7 on backplane)

Meter power detector

SPI interface for clock serial peripherals (e.g. SEC meter)

I2C Interface

iButton interface

Power Requirement

12V single power input

- No extra ATX PSU - uses standard cabinet PSU
- Low total power consumption for low heat and energy efficiency

Storage

- 2 x Front panel CFAST sockets up to 6Gb/s
- 2 x SATA sockets up to 6Gb/s (SATA DOM, SSD, HDD)
- 1 x eSATA socket on front panel 6Gb/s
- 256Bytes of user EEPROM storage (optional up to 128KBytes)

- All-in-one solution
- Revolutionary AMD Embedded R-Series SoC processors
- Supports 4k Ultra HD monitors
- Embedded roadmap = 5+ years availability
- Single +12V (nominal) power input
- Removable CPU tray and customisable backplane
- CPU tray is pin compatible with QX-40/QX-50

Gaming Hardware

Up to 32MBytes of NVRAM

- Battery backed SRAM or optional MRAM
- Lithium primary or optional Lithium Pentoxide rechargeable cells
- Ultra-fast 64-bit, PCI Express® interface
- Hardware accelerated memory bank mirroring and CRC support
- Four independent physical banks
- 5-year battery life

Battery powered logging processor

- 8 intrusion inputs
- Supports standard and opto switches
- Date/time stamped recording of 64 events
- Auto system switch on (time)
- Programmable watchdog timer
- Battery voltage monitoring & warning
- Automatic meter handling

Advanced digital I/O connected via PCI Express®

Up to 64 digital inputs

- Individually configurable for interrupt generation
- Trigger on rising or falling edges or both
- Input pulse width screening
- Configurable hardware debounce filtering

Up to 64 digital outputs:

- Variety of drive configurations available
- Output overload protection
- Detection and reporting of open and short circuits

Security

- Gaming Controller Delayed Activation
- Hardware AES 128/256 ECB/CBC Encryption/Decryption Engine with a DMA controller
- Secure AES key storage
- Unique electronic serial number
- Optional TPM
- Write Once Key

Audio

High Definition Audio

- 7.1 Audio channels
- Built-in stereo 18W/channel digital amplifier

BIOS

BIOS designed specifically for gaming

- Hardware validation of BIOS via secure hash algorithm
- BIOS Validation of boot drive via secure hash algorithm
- Write-protection of BIOS ROM
- Fully customisable

Software

Full software support for Windows Embedded (7, 8 and 10) and Linux

- 32 and 64-bit OS support
- Static, dynamic and .NET libraries
- Example code and demo software available

Gaming Protocols

Quixant supplied communication & peripheral protocols

- SAS 6.02, Generic COM Port driver (with 9-bit support)
- JCM ID003, MEI, ccTalk (including MD100 and JCM Vega devices support)
- Futurelogic, Money Controls, Ithaca
- iButton, I2C devices, generic SPI, SEC Meter



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