RCHD-PF - SYSTEM ON MODULE

Compact System on Module based on Microchip PolarFire® SoC FPGA.

- 667 MHz RISC-V, 5 cores with real-time capability
- Microchip PolarFire® FPGA, from 23 K to 254 K logic elements
- Unique combination of RISC-V and FPGA on a single chip
- Rich connectivity, including high speed IO and 12.7 Gbit/s transceivers
- Real-time signal processing with hardware offload

Highly scalable System-on-Module, capable of performant and extremely efficient digital signal processing.

Ideal for FPGA-specific loads like video processing, imaging, artificial intelligence, deep packet inspection, advanced sensor fusion, and Operational Technology systems supervision - all in real-time.

Orchid is accompanied by an evaluation board that provides access to most of Orchid's features in a standard PCIe card form factor.

Dimensions:

- System on Module: 45 mm x 65 mm
- Evaluation board: 99 mm x 168 mm

Software support:

- Linux 4.14 to 5.16 and newer
- Ubuntu 20.04 LTS
- U-Boot
- Buildroot
- Yocto and other distributions on request
- FreeBSD 13 on request
- FreeRTOS
- Zephyr

CONCLUSIVE ENGINEERING

Applicable for:

- Operational Technology and Industrial Control
 Systems
- Imaging and Video Processing
- Artificial Intelligence/Machine Learning (AI/ML)
- Internet of Things (IoT)
- Industrial Automation
- Automotive
- Aerospace and Defense
- Wireline Access Networks
- Cellular Infrastructure



- Sales@conclusive.pl
- Ligocka 103/3
 40-568 Katowice, POLAND

RISC-V & FPGA System on Module

ORCHID RCHD-PF



CONCLUSIVE DEVICES



ORCHID RCHD-PF System on Module

ORCHID RCHD-PF-EVAL Evaluation Board

168 mm



45 mm



USB 2.0 OTG PHY

55 mm

RAM memory · LPDDR4/DDR4 from 512 MB to 8 GB • 1600 MT/s



external battery backup

Available via I²C

Ethernet PHY

1 Gbit/s

 Pre-programmed with MAC address and unique serial number

NOR Flash memory • 32 MB holds FPGA configuration

• GPIO

• RTC

• MDIO

• UART

• GPIO

• SPI



connector 4

High Speed IO

 SGMII RESET Board-to-board connector 2

Ethernet

Power supply inputs



GPIO header Raspberry Pi compatible Power status LEDs • 5 V, 2.5 V, 1.5 V, 1.1 V, 1.05 V

E

ő

B

Conclusive Developer Cable connector

- · 1.27 mm pitch 20-pin connector • Provides access to: System UART
- · JTAG port
- System I²C bus
- PCIe edge card connector • PCle 2.0 x1
- HDMI video output
- **USB Micro-AB connector** • USB 2.0 OTG
- USB Micro-B connector • USB 2.0 serial • 4x virtual serial port

- M.2 Key-E • PCIe 2.0 x1 • USB • UART • I²C
- SoM attachment area 4 board-to-board connectors for Orchid RCHD-PF
- SFP+
- Power input •1x 2.5 x 5.5 mm jack • 12 V DC
- Battery holder 1x CR1220 for RTC upkeep
- General purpose switch • 4x, user-programmable
- Ethernet · 2x 1 Gbit/s RJ-45

- Power input 1x Molex • 12 V DC **Reset Switch**
- MIPI-DSI Camera header Raspberry Pi compatible
- M.2 Key-M • PCle 2.0 x1
- CAN bus
- 20 LED indicators • 5x, user-programmable
 - Microchip FlashPro5/FlashPro6 **Programmer Connector**

www.conclusive.pl/devices