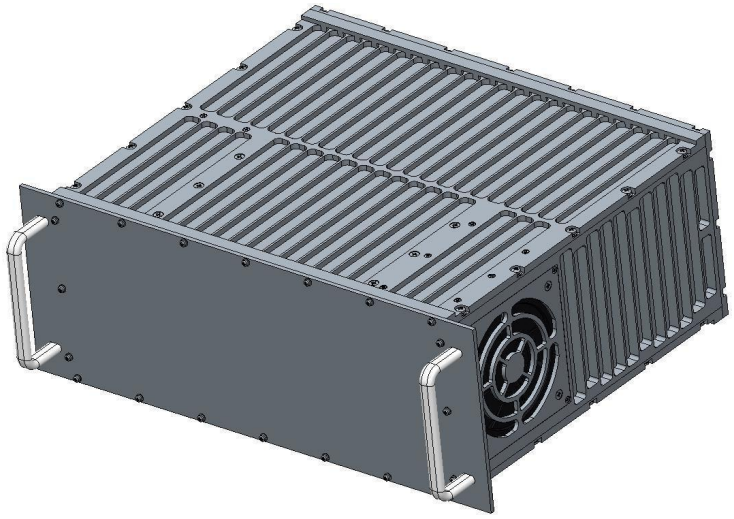
Shenzhen Renice Technology Co., Limited

6U Xeon E5 Rugged Heterogeneous Image Processing Server

Datasheet



V1.0

2019-12-02

Catalogue

1 Introduction..... 1

1.1 Product overview..... 1

1.2 Product picture..... 2

1.3 Product configuration..... 3

2 Product Specification..... 3

2.1 Main function & technical specification..... 3

2.2 Structure specification..... 4

3 Detailed Specification & Parameter..... 4

3.1 Operation environment..... 4

3.2 Electrical specification..... 4

3.3 Mechanical specification..... 5

3.4 Operation system..... 5

3.5 Interface..... 5

3.6 Other functions..... 6

4 Ordering Rule..... 7

1 Introduction

1.1 Product Overview

With the massive and explosive growth of data, the demand for the data processing capacity of clients has become higher and higher. RVPX-4U03S-1I1 is a high-performing heterogeneous image processing server, configuring high-performing CPU + FPGA heterogeneous computing architecture, greatly improving the computing capacity of the processor.

RVPX-4U03S-1I1 is composed of one rugged high-performing Xeon 6U VPX processing module（R6V PX-SE2648-C1I2）, one rugged high-performing 6U VPX FPGA processing module（ R6VPX-SV20 0T-C1I1）, two rugged 200W 3U VPX power modules, and one three- slot VPX backplane.

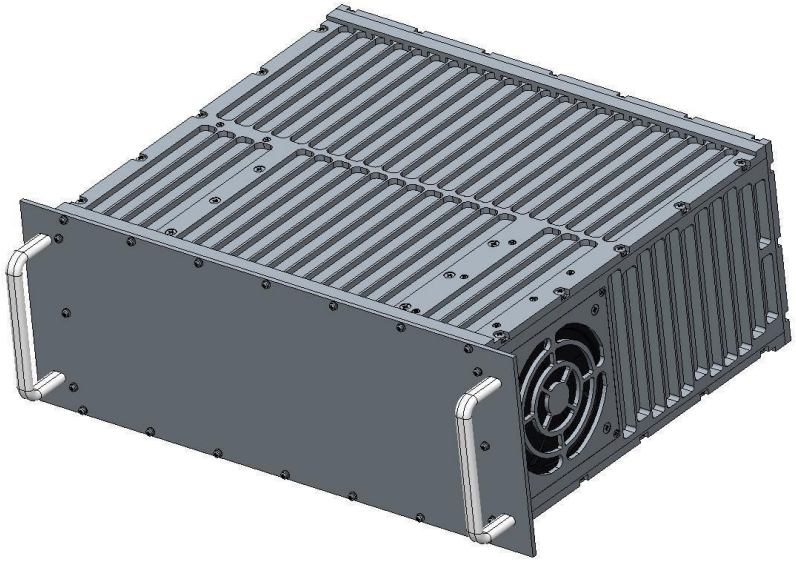
R6VPX-SE2648-C1I2 and R6VPX-SV200T-C1I1 are interconnected through the PCI e 3.0 × 4 bus on the backplane.The rear panel of the whole machine provides VGA, USB, network and other debugging and trial port.In addition, the whole machine also provides pal, Cameralink and USB interfaces for users.

All the modules in RVPX-4U03S-1I1 include health management unit (BMC), which is in accordance with IPMI 1.5/2.0 protocol, supporting the monitoring function of voltage, current and temperature of all key chips (CPU, memory, SATA disk and the whole board) on the processor module; supporting the monitoring function of voltage, current and temperature of all key chips (FPGA, memory, flash and whole board) on FPGA module; supporting remote on and off reset functions of all modules. SVP X-4U03S-1I1 server supports the standard mainstream operating systems such as windows7, windows10 and CentOS.

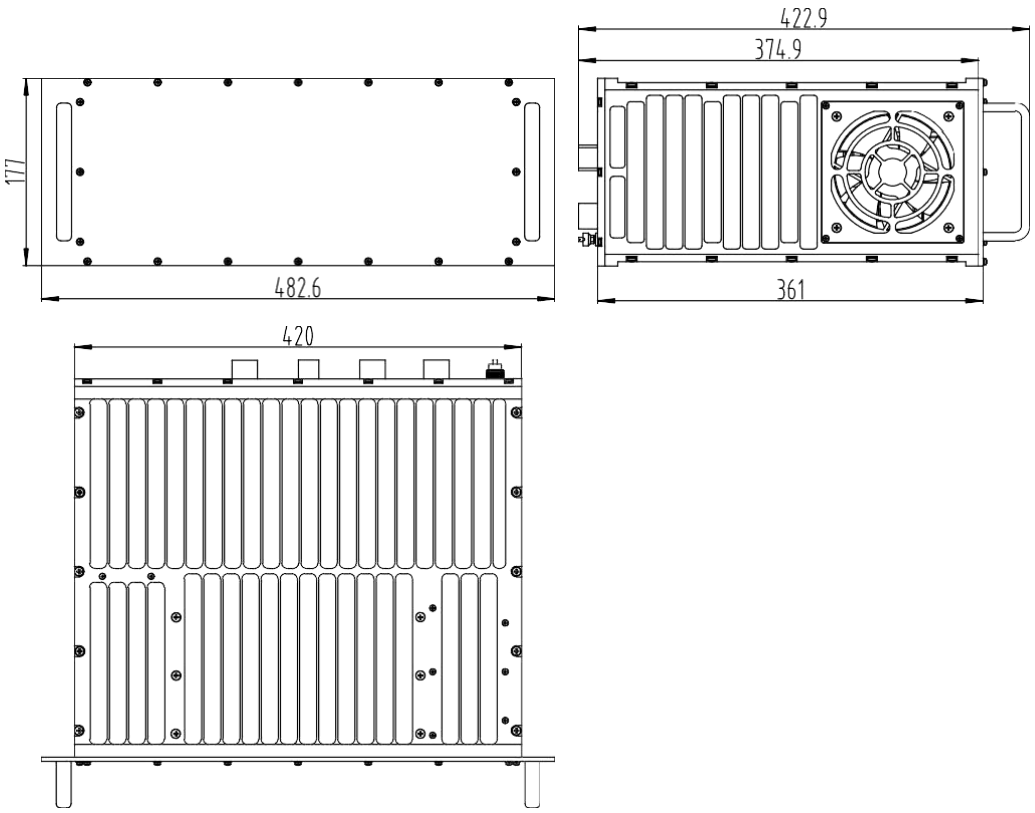
RVPX-4U03S-1I1 adopts the structure of reinforced air-cooled cooling cabinet with the height of 4U. The overall dimension of the whole server (excluding handle and connector) is 282.6mm (width) × 177mm (H) × 361 mm (deep).The interior of the chassis includes module area, fan area and connector area, etc, and each functional module and power supply are installed in the module area, adopting air plug wire back out and all function module cross front out .

The chassis fan module is arranged on the left and right sides of the front of the chassis and fixed on the left and right side plates, adopting the heat dissipation mode of right air inlet and left air outlet.

1.2 Product Picture



F 1 Outlook Picture



F 2 Dimension

1.3 Product Configuration

Table 1 Hardware Configuration

Item	Name	Number	Description
1	Reinforced air cooled case	1	19 inches can be released ,4U-height.
2	CPU module	2	Xeon series high- performing processor
3	FPGA module	1	Xilinx XC7V2000T-2FHG1761C
4	Power module	2	3U VPX
5	Backplane	1	4U 3 Slot VPX backplane
6	Fan	2	——

2. Product Specification

2.1 Main Function and Technical Specification

1) The CPU adopts Intel Xeon series multi-core high-performing GPP, the main frequency not less than 1.8GHz, a single CPU with 12 cores or more;

2) FPGA adopted Xilinx XC7V2000T-2FHG1761C；

3) The function module is designed with 6U VPX architecture. The whole server uses three function module slots and two power module slots. The CPU module and FPGA module on the backplane occupy one slot respectively, and the remaining slot is reserved for FPGA module slot;

4) CPU module outputs one channel of PCI 3.0 × 4 bus , connected with FPGA module, and another one outputs PCIE 3.0 × 4-bus, interconnected to the reserved FPGA module interconnection；

5) The whole machine can support 720 × 576 pixel pal camera and 1920 × 1080 pixel Cameralink camera；

6) Supporting module health status management, monitoring the status of CPU, memory, FPGA, memory chip and other key chips on the module；

7) Supporting windows, CentOS, Ubuntu and domestic Linux and other operating systems；

8) The rear panel includes USB interface, VGA interface, network interface, pal interface and Cameralink;

9) Interface: 1-channel AC 220 V / 50 Hz power supply, 1-channel 100 / 1000 Mbps Ethernet, 1-channel USB, 1-channel VGA, 1-channel pal, 1-channel Cameralink and debugging interface;

10)AC 220V/50 Hz power input, power consumption≤ 400W.

2.2 Structure Specification

1) Overall dimension: 19 inch 4U height, 282.6mm(width) (excluding handle and connector) × 177mm (H) × 361mm (depth), allowable tolerance ±5mm, see GB / T1804-m for dimension tolerance notin dicated;

2) Materials: the materials of the air-cooled case mainly include aluminum alloy, stainless steel, rubber, etc. the structural parts are mainly formed by gold processing, with Magnesium Aluminum Alloy 6063, solid solution heat treatment and artificial aging, and surface conductive oxidation treatment. The fastener and handle are made of stainless steel, and the heat conducting gasket is made of rubber.

3) Overall weight (excluding external cables) ≤ 35kg;

4) Heat dissipation: conduction cooling + air cooling, fan right air inlet, left air outlet;

5) The debugging interface is located on the front panel with a locking debugging cover.

3.Detailed Specification and Parameter

3.1 Operation Environment

Item	Specification	Description
Operation Temp	0℃～ +50℃	
Storage Temp	-50℃～ +65℃	
Steady Damp-heat	+40 ℃, relative humidity 95% ± 3%, 72 hours	
Other	Vibration, shock, salt spray, mold and electromagnetic compatibility all meet the shipboard requirements Cabin environment requirements	

3.2 Electrical Specification

Item	Specification	Description
Operation Voltage	AC 220V/50Hz input	

Item	Specification	Description
Power Consumption	Maximum power consumption ≤ 400W	
Cooling Method	cooling + air cooling, fan right air inlet and left air outlet	

3.3 Mechanical Specification

Item	Specification	Description
Weight	(excluding external cable) ≤ 35kg	
Dimension	Conform to 19 inch 4U height, size (excluding handle and connector) 282.6mm (width) × 177mm (H) × 361 mm (deep)	
Material	The materials of the air-cooled cabinet mainly include aluminum alloy, stainless steel, rubber, etc; The structural parts are mainly formed by gold processing, using magnesium aluminum Alloy 6063, solution heat treatment and artificial aging treatment, surface conductive oxidation treatment. The fastener and handle are made of stainless steel, and the heat conducting gasket is made of rubber.	

3.4 Operation System

Item	Specification	Description
High performing computing blade	Intel Xeon E5 V4 series multi-core GPP, main frequency not less than 1.8GHz, a single CPU with 12 cores or more;	
	32GB DDR4	
	XMC XC7K325T Video capture card	
High performance image processing blade	Xilinx FPGA XC7V2000T	
	2GB DDR3	
System Configuration	Including 1 high performance computing blade and 2 high performance image processing blades	
Operation System	Support windows, CentOS, Ubuntu and Linux operating system	
Software	Renice Image acquisition & processing software	

3.5 Interface

Item	Specification	Description
Power	One channel AC 220 V / 50 Hz power supply Aviation Plug	
CameraLink	1-channel Cameralink Aviation Plug	

Item	Specification	Description
PAL	1-way pal aviation plug interface	
USB	1-way USB camera aviation plug interface	
Network	One channel 100 / 1000Mbps Ethernet aviation plug interface	
VGA	1-way VGA aviation plug interface	

3.6 Other Function

Item	Specification	Description
Intelligent monitoring and management	Can be used for hardware design of CPU, memory, FPGA, memory chip and other key chips Monitor the status of components.	
Other	Require 720 × 576 pixel pal camera and 1920 × 1080 pixels Cameralink camera .	

4 Ordering Rules

RVPX-4U03S-1I1

