SimgeNet
Mühendislik

Simgenet SMG818V5 Industrial IP/MPLS Router

Hardware User Manual

(Hardware-Oriented Usage and Reference Document)

1. Purpose and Scope

This document is prepared to explain the hardware architecture of the SMG818V5 Industrial IP/MPLS Router product, its ETSI-compliant physical layout, port and slot structure, power and cooling components, as well as the supported Ethernet modules; and to provide a hardware reference for installation and field operation by defining the location and functions of hardware components.

This document does not contain CLI commands or software configuration. Information regarding CLI can be found in the SMGOS CLI User Manual / Command Reference document.

2. General Hardware Description of the Product

The SMG818V5 is an industrial IP/MPLS router platform designed with a 2U rackmount form factor for 19-inch rack environments, featuring all I/O components on the front panel and only power and cooling components on the rear panel.

All console, USB, and Ethernet interfaces are located on the front panel. The rear panel contains only the 2×220 VAC redundant industrial-type power supplies and hot-swap fan modules. This layout ensures cabling and maintenance convenience in compliance with ETSI standards.

3. Front Panel Layout and Components

   The front panel includes the console, USB, management Ethernet ports, Ethernet module slots, and status LEDs, all designed to facilitate easy access and maintenance in the field.

Component	Description
1: LEDs	Status LED for power input and hard disk
2: Console	Used for initial access and maintenance
3: USB (2 x USB3.0)	Service and maintenance operations
4/5: Management Ports (ETH0 / ETH1)	Management or service ports
7➔14: Copper / Fiber Ethernet Slots	Copper and Fiber Ethernet card slots

4. Rear Panel Layout

The rear panel contains only power and cooling components:

Component	Description
1–3: Fans	Hot-swap fan modules
4: Power Switch	Start, Reboot, Shutdown
5: PSU1 / 550 Watt	220 VAC power supply 1 (industrial type)
6: PSU2 / 550 Watt	220 VAC power supply 2 (industrial type)

5. Platform and Processor Hardware Features

Component	Description
Platform	Industrial router platform
CPU	Single-socket 4th/5th Gen Intel® Xeon® Scalable processor support
Chipset	Intel® C741 (Intel 5418Y CPU)

6. Memory Subsystem Technical Features

Component	Description
Memory Type	DDR5 4400 / 4800 MHz ECC RDIMM support
Memory Capacity	Up to 4 TB total memory support
Memory Slots	16 × DDR5 DIMM slots

7. Hardware Capacity and Backplane Approach

SMG818V5 offers a PCIe Gen5-based modular expansion architecture. This structure allows scalable configurations with different Ethernet speeds from 1G to 100G.

SMG818V5 uses a PCIe Gen5-based modular Ethernet card architecture instead of classic ASIC-based chassis architectures. In this architecture, backplane capacity is evaluated based on the total theoretical PCIe I/O capacity of the Ethernet expansion slots.

Metric	Value
Ethernet expansion slots	8 × PCIe Gen5 x8
Theoretical capacity per slot (FD)	≈ 500 Gbps
Total theoretical backplane capacity (FD)	≈ 4 Tbps

In packet switching scenarios (IP, MPLS, etc.), actual forwarding performance depends on packet size, protocol type, and service load. Therefore, theoretical values should be considered as hardware design ceilings, not performance guarantees.

8. Physical Features

Form factor: 2U rackmount (440 × 592 × 88 mm)

9. Environmental Features

Parameter	Value
Operating Temperature	-10 °C ~ +55 °C
Storage Temperature	-40 °C ~ +70 °C
Humidity	10% ~ 95% (non-condensing)
Certification	Compliant with CCC, EMC, RoHS, CE, FCC, and other certification standards.

10. Certification and Industrial Durability

- EMC Level 3 industrial durability
- Design suitable for energy, railway, industrial facilities, telecom, and ISP field environments
- Designed for long-term and uninterrupted field operation

11. Supported Copper and Fiber Ethernet Modules

No	Model	Port Yapısı	Hız	Arayüz Tipi	Özel Özellik	Açıklama
1	SMG3500PF-8SFP-M	8 × SFP				PCIe x8 Mezzanine Ethernet Network Adapter (Intel I350)
2	SMG3500PF-4SFP-M	4 × SFP			Yok	PCIe x8 Mezzanine Ethernet Network Adapter (Intel I350)
3	SMG3500PT-8T-M	8 × RJ45	1G			PCIe x8 Mezzanine Ethernet Adapter (Intel I350)
4	SMG3500BP-8T-M	8 × RJ45			Bypass	PCIe x8 Mezzanine Bypass Ethernet Adapter (Intel I350)
5	SMG3501PT-4T-M	4 × RJ45		Mezzanine	Yok	PCIe x8 Mezzanine Ethernet Adapter (Intel I350)
6	SMG3501BP-4T-M	4 × RJ45			Bypass	PCIe x8 Mezzanine Bypass Ethernet Adapter (Intel I350)
7	SMG5991PF-2SFP-M	2 × SFP+	10G			PCIe x8 Mezzanine Ethernet Network Adapter (Intel 82599)
8	SMG7100PF-2QSFP-M	2 × QSFP+	40G		Yok	PCIe x8 Mezzanine Ethernet Network Adapter (Intel XL710)
9	SMG8100PF-2QSFP-M	2 × QSFP+	100G			PCIe x8 Mezzanine Ethernet Network Adapter (Intel E810)

12. Supported Mezzanine Ethernet Cards (Summary Table)

No	Model	Port Yapısı	Hız	Görsel
1	SMG3500PF-8SFP-M	8 × SFP	1 Gbps	
2	SMG3500PF-4SFP-M	4 × SFP	1 Gbps	
3	SMG3500PT-8T-M	8 × RJ45	1 Gbps	
4	SMG3500BP-8T-M	8 × RJ45	1 Gbps	

5	SMG3501PT-4T-M	4 × RJ45	1 Gbps	
6	SMG3501BP-4T-M	4 × RJ45	1 Gbps	
7	SMG5991PF-2SFP-M	2 × SFP+	10 Gbps	
8	SMG7100PF-2QSFP-M	2 × QSFP+	40 Gbps	
9	SMG8100PF-2QSFP-M	2 × QSFP+	100 Gbps	

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