

# MRX-G4064シリーズ

56 GbEポートと8つの10GbEポートレイヤー3フルギガビットモジュール式マネージド・イーサネット・スイッチ



reddot winner 2024



## 機能と特長

- 10GbEイーサネットポート8個
- 最大56個の1GbEポートまたはSFPスロット
- HAST（高可用性スタティックトランク）テクノロジーがバックボーンの信頼性をサポート
- 一目でステータス更新を確認できるオンボードLCMディスプレイにより、現場でのメンテナンスと操作が容易
- デュアル電源モジュールと6+2ファン冗長設計により、ネットワークのノンストップ運用を実現
- ネットワークとデバイスを保護するためのリアルタイムのシステム温度監視

## 認証



## 製品紹介

MRX-G4064シリーズは、産業現場における情報技術の融合の進展に伴う産業用ビデオ、音声、およびデータアプリケーションの高性能、高可用性の要件を満たすように設計されています。

MRX-G4064シリーズのモジュール式设计は、8つの10GbEポートを内蔵し、モジュール経由で最大56個の1GbEポートをサポートし、大規模な産業用ネットワークアプリケーションの構築に最適です。10GbEポートにより、ネットワークスイッチング帯域幅が大幅に増加し、10GbE対応サーバーへの直接接続が可能になり、データの収集と分析をアプリケーションサイトの近くに移動できるようになります。さらに、マルチポート集約のサポートにより、より広い帯域幅のバックボーンが実現されると同時に、将来のネットワーク拡張に余裕が生まれます。

MRX-G4064シリーズは、より多くのフィールドデバイスを収容できるだけでなく、データ伝送の遅延を低減し、高性能ネットワーク上で大量の映像、音声、データの高速伝送を可能にします。このシリーズには、冗長化されたマルチファン冷却システムと冗長化された独立電源が搭載されています。産業用高効率Turbo Ring技術のほか、ERPS（ITU-T G.8032）やRSTP/STPなどのネットワーク冗長化技術もサポートしており、IT/OTコンバージェンスアプリケーションにおけるバックボーンネットワークの信頼性と可用性を向上させることができます。

## その他の機能と特長

- 効果的な帯域幅管理と最大限の信頼性を実現する柔軟な帯域幅/ポートの組み合わせ
- 迅速な管理のためのコマンドラインインターフェース（CLI）
- インバンドサービスにアクセスできない場合でもネットワーク管理の可用性を確保するためのアウトオブバンド管理（OOBM）ポート
- ノンストップ運用のためのシステム温度制御と消費電力管理
- セキュリティ監視と監査をサポートするポートミラーリング（N:M）テクノロジー
- フレーム損失を防ぐために、大規模なビデオ監視の大規模なバースト伝送に最適化
- ネットワーク時間同期のためのIEEE1588v2 PTP（高精度時間プロトコル）
- 産業用ネットワークの管理と可視化のためのMXconfigとMXview Oneをサポート

## 仕様

### Ethernet Interface

|                               |                                          |
|-------------------------------|------------------------------------------|
| 1000/2500/10000BaseSFP Ports  | 8                                        |
| 1000BaseSFP Slots             | 8                                        |
| Out-of-band Management (OOBM) | 1 x 8-pin RJ45 1GbE Ethernet port (MGMT) |

|           |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
|-----------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Module    | <p>There are 3 module slots on the switch. Users can select different types of modules to insert into the switch. The modules that can be selected include 16-port modules with 1000BaseT(X) or 1000BaseSFP interfaces.</p> <p>Refer to Expansion Modules in the Accessories section for a full list of supported interface modules.</p>                                                                                                                                                                                                                                       |
| Standards | <p>IEEE 802.1D-2004 for Spanning Tree Protocol<br/> IEEE 802.1p for Class of Service<br/> IEEE 802.1Q for VLAN Tagging<br/> IEEE 802.1s for Multiple Spanning Tree Protocol<br/> IEEE 802.1w for Rapid Spanning Tree Protocol<br/> IEEE 802.1X for Authentication<br/> IEEE 802.3ab for 1000BaseT(X)<br/> IEEE 802.3ad for Port Trunk with LACP<br/> IEEE 802.3x for Flow Control<br/> IEEE 802.3z for 1000BaseSX/LX/LHX/ZX<br/> IEEE 802.3ae for 10 Gigabit Ethernet<br/> IEEE 802.3az for Energy-Efficient Ethernet<br/> ITU-T G.8032 Ethernet Ring Protection Switching</p> |

## Ethernet Software Features

|                      |                                                                                                                                                                                                                                                                                                                          |
|----------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Management           | <p>IPv4<br/> Flow control<br/> Back Pressure Flow Control<br/> DHCP Client<br/> ARP<br/> RARP<br/> LLDP<br/> Linkup Delay<br/> SMTP<br/> SNMP Trap<br/> SNMP Inform<br/> SNMPv1/v2c/v3<br/> RMON<br/> TFTP<br/> SFTP<br/> HTTP<br/> HTTPS<br/> Telnet<br/> Syslog<br/> Private MIB<br/> Port Mirroring (SPAN, RSPAN)</p> |
| Filter               | <p>GMRP<br/> GVRP<br/> GARP<br/> 802.1Q<br/> IGMP Snooping v1/v2/v3<br/> IGMP Querier</p>                                                                                                                                                                                                                                |
| Redundancy Protocols | <p>STP<br/> RSTP<br/> Turbo Ring v2<br/> Ring Coupling<br/> Multiple Dual-Homing<br/> Link Aggregation<br/> Network Loop Protection<br/> MSTP</p>                                                                                                                                                                        |
| Routing Redundancy   | <p>VRRP</p>                                                                                                                                                                                                                                                                                                              |
| Security             | <p>Broadcast storm protection<br/> Rate Limit<br/> Access control list<br/> Static port lock<br/> Sticky MAC<br/> HTTPS/SSL<br/> SSH<br/> RADIUS<br/> TACACS+<br/> Login and password policy</p>                                                                                                                         |

|                 |                                                                                                                                                                                          |
|-----------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|                 | Secure Boot                                                                                                                                                                              |
| Time Management | SNTP<br>IEEE 1588v2 PTP (hardware-based)<br>NTP Server/Client<br>NTP Authentication                                                                                                      |
| Protocols       | TCP/IP<br>UDP<br>ICMP<br>ARP<br>RARP<br>TFTP<br>DNS<br>NTP Client<br>DHCP Client<br>802.1X<br>QoS<br>HTTPS<br>HTTP<br>Telnet<br>SMTP<br>SNMPv1/v2c/v3<br>IPv4<br>RMON<br>Syslog          |
| Unicast Routing | OSPF<br>Static Route                                                                                                                                                                     |
| MIB             | P-BRIDGE MIB<br>Q-BRIDGE MIB<br>IEEE8021-SPANNING-TREE-MIB<br>IEEE8021-PAE-MIB<br>IEEE8023-LAG-MIB<br>LLDP-EXT-DOT1-MIB<br>LLDP-EXT-DOT3-MIB<br>SNMPv2-MIB<br>RMON MIB Groups 1, 2, 3, 9 |

### Switch Properties

|                    |               |
|--------------------|---------------|
| MAC Table Size     | 32 K          |
| Max. No. of VLANs  | 512           |
| IGMP Groups        | 1500          |
| Jumbo Frame Size   | 9.6 KB        |
| Packet Buffer Size | 6 MB          |
| Priority Queues    | 8             |
| VLAN ID Range      | VID 1 to 4094 |

### USB Interface

|              |            |
|--------------|------------|
| Storage Port | USB Type A |
|--------------|------------|

### MicroSD Interface

|              |              |
|--------------|--------------|
| Storage Port | microSD card |
|--------------|--------------|

### Serial Interface

|              |               |
|--------------|---------------|
| Console Port | RS-232 (RJ45) |
|--------------|---------------|

### Input/Output Interface

|                        |                                                               |
|------------------------|---------------------------------------------------------------|
| Alarm Contact Channels | 1 relay output with current carrying capacity of 2 A @ 30 VDC |
|------------------------|---------------------------------------------------------------|

## Power Parameters

|                             |                                                                                                                                                                                                                                |
|-----------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Input Voltage               | 100-240 VAC, 50-60 Hz or 230-240 VDC (for each power supply)                                                                                                                                                                   |
| Operating Voltage           | 90-264 VAC, 47-63 Hz or 180-300 VDC (for each power supply)                                                                                                                                                                    |
| Overload Current Protection | Supported                                                                                                                                                                                                                      |
| Reverse Polarity Protection | Supported                                                                                                                                                                                                                      |
| Input Current               | Max. 1.236 A @ 110 VAC<br>Max. 0.675 A @ 220 VAC<br>Max. 0.74 A @ 180 VDC<br>Max. 0.439 A @ 300 VDC                                                                                                                            |
| Power Consumption (Max.)    | Max. 134.2 W @ 110 VAC<br>Max. 132.3 W @ 220 VAC<br>Max. 133.2 W @ 180 VDC<br>Max. 131.8 W @ 300 VDC<br><br>Note: These are the maximum power consumption ratings for the device with the maximum number of modules installed. |
| Power Module                | 2 x slots (2 x PWR-300-HVA-IF power modules included)                                                                                                                                                                          |

## Physical Characteristics

|                       |                                                       |
|-----------------------|-------------------------------------------------------|
| IP Rating             | IP30                                                  |
| Dimensions            | 440 x 88 x 420 mm (17.32 x 3.46 x 16.54 in)           |
| Weight                | 12 kg (26 lb)                                         |
| Fan Module            | 8 x slots (8 x XM-4000-FAN-R preinstalled)            |
| Installation          | Rack mounting                                         |
| Interactive Interface | Onboard LCM display<br>Push buttons for configuration |

## Environmental Limits

|                                        |                            |
|----------------------------------------|----------------------------|
| Operating Temperature                  | -10 to 60°C (-14 to 140°F) |
| Storage Temperature (package included) | -40 to 85°C (-40 to 185°F) |
| Ambient Relative Humidity              | 5 to 95% (non-condensing)  |

## Standards and Certifications

|         |                                                                                                                                                                                                                                                                                           |
|---------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Safety  | UL 62368-1<br>UL 61010-2-201<br>IEC 62368-1                                                                                                                                                                                                                                               |
| EMC     | EN 55032/35<br>EN 61000-6-2/-6-4                                                                                                                                                                                                                                                          |
| EMI     | CISPR 32, FCC Part 15B Class A                                                                                                                                                                                                                                                            |
| EMS     | IEC 61000-4-2 ESD: Contact: 6 kV; Air: 8 kV<br>IEC 61000-4-3 RS: 80 MHz to 1 GHz: 20 V/m<br>IEC 61000-4-4 EFT: Power: 2 kV; Signal: 2 kV<br>IEC 61000-4-5 Surge: Power: 2 kV; Signal: 2 kV<br>IEC 61000-4-6 CS: 10 V<br>IEC 61000-4-8 PFMF<br>IEC 61000-4-11 Voltage Dips & Interruptions |
| Railway | EN 50121-4                                                                                                                                                                                                                                                                                |
| Shock   | IEC 60068-2-27                                                                                                                                                                                                                                                                            |

|                        |               |
|------------------------|---------------|
| Vibration              | IEC 60068-2-6 |
| Package Drop Test      | ISTA 1A       |
| Package Vibration Test | ISTA 1A       |

#### MTBF

|           |                          |
|-----------|--------------------------|
| Time      | 1,337,959 hrs            |
| Standards | Telcordia (Bellcore), GB |

#### Warranty

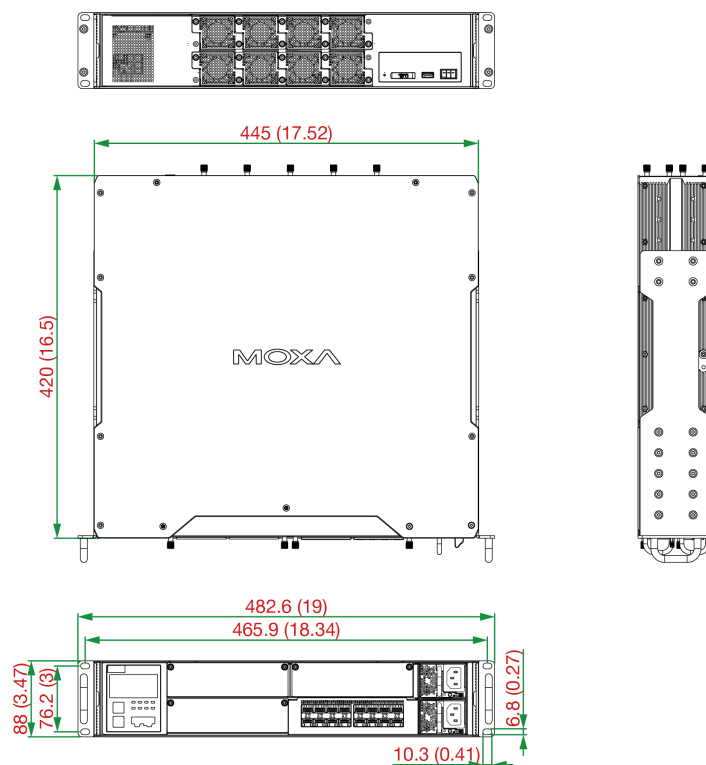
|                 |                                                                            |
|-----------------|----------------------------------------------------------------------------|
| Warranty Period | 5 years                                                                    |
| Details         | See <a href="http://www.moxa.com/jp/warranty">www.moxa.com/jp/warranty</a> |

#### Package Contents

|                  |                                                                                                                    |
|------------------|--------------------------------------------------------------------------------------------------------------------|
| Device           | 1 x MRX-G4064-L3-8XGS Series switch (eight XM-4000-FAN-R fan modules preinstalled)                                 |
| Power Supply     | 2 x PWR-300-HVA-IF power modules                                                                                   |
| Installation Kit | 2 x rack-mounting ear<br>2 x plastic IP30 dust cover for PWR power modules<br>8 x round stickers for module screws |
| Documentation    | 1 x quick installation guide<br>1 x warranty card                                                                  |
| Note             | This product requires additional modules (sold separately) and IEC 60320 C15 power cords to function.              |

## 寸法

単位 = mm (インチ)



| Model Name        | Max. No. of Ports | 10GbE SFP+ Slots | 1000Base SFP Slots | 1000BaseT(X) Ports (RJ-45) | L3 Functionality | Operating Temp. |
|-------------------|-------------------|------------------|--------------------|----------------------------|------------------|-----------------|
| MRX-G4064-L3-8XGS | 64                | 8                | Up to 56           | Up to 48                   | P                | -10 to 60°C     |

アクセサリー（別売）

## Expansion Modules

|                |                                                    |
|----------------|----------------------------------------------------|
| XM-4000-16GTX  | Gigabit Ethernet module with 16 1000BaseT(X) ports |
| XM-4000-16GSFP | Gigabit Ethernet module with 16 1000BaseSFP ports  |

## Power Modules

|                |                                                                                                    |
|----------------|----------------------------------------------------------------------------------------------------|
| PWR-300-HVA-IF | Isolated power supply module (110/220 VAC/VDC) with system power input, AC power inlet, intake fan |
|----------------|----------------------------------------------------------------------------------------------------|

## Fan Modules

|               |                                     |
|---------------|-------------------------------------|
| XM-4000-FAN-R | Exhaust fan module for MRX switches |
|---------------|-------------------------------------|

## SFP Modules

|               |                                                                                                                                                        |
|---------------|--------------------------------------------------------------------------------------------------------------------------------------------------------|
| SFP-1G10ALC   | WDM-type (BiDi) SFP module with 1 1000BaseSFP port with LC connector for 10 km transmission; TX 1310 nm, RX 1550 nm, 0 to 60°C operating temperature   |
| SFP-1G10BLC   | WDM-type (BiDi) SFP module with 1 1000BaseSFP port with LC connector for 10 km transmission; TX 1550 nm, RX 1310 nm, 0 to 60°C operating temperature   |
| SFP-1G20ALC   | WDM-type (BiDi) SFP module with 1 1000BaseSFP port with LC connector for 20 km transmission; TX 1310 nm, RX 1550 nm, 0 to 60°C operating temperature   |
| SFP-1G20BLC   | WDM-type (BiDi) SFP module with 1 1000BaseSFP port with LC connector for 20 km transmission; TX 1550 nm, RX 1310 nm, 0 to 60°C operating temperature   |
| SFP-1G40ALC   | WDM-type (BiDi) SFP module with 1 1000BaseSFP port with LC connector for 40 km transmission; TX 1310 nm, RX 1550 nm, 0 to 60°C operating temperature   |
| SFP-1G40BLC   | WDM-type (BiDi) SFP module with 1 1000BaseSFP port with LC connector for 40 km transmission; TX 1550 nm, RX 1310 nm, 0 to 60°C operating temperature   |
| SFP-1G10ALC-T | WDM-type (BiDi) SFP module with 1 1000BaseSFP port with LC connector for 10 km transmission; TX 1310 nm, RX 1550 nm, -40 to 85°C operating temperature |
| SFP-1G10BLC-T | WDM-type (BiDi) SFP module with 1 1000BaseSFP port with LC connector for 10 km transmission; TX 1550 nm, RX 1310 nm, -40 to 85°C operating temperature |
| SFP-1G20ALC-T | WDM-type (BiDi) SFP module with 1 1000BaseSFP port with LC connector for 20 km transmission; TX 1310 nm, RX 1550 nm, -40 to 85°C operating temperature |
| SFP-1G20BLC-T | WDM-type (BiDi) SFP module with 1 1000BaseSFP port with LC connector for 20 km transmission; TX 1550 nm, RX 1310 nm, -40 to 85°C operating temperature |
| SFP-1G40ALC-T | WDM-type (BiDi) SFP module with 1 1000BaseSFP port with LC connector for 40 km transmission; TX 1310 nm, RX 1550 nm, -40 to 85°C operating temperature |
| SFP-1G40BLC-T | WDM-type (BiDi) SFP module with 1 1000BaseSFP port with LC connector for 40 km transmission; TX 1550 nm, RX 1310 nm, -40 to 85°C operating temperature |
| SFP-1GSXLC    | SFP module with 1 1000BaseSX port with LC connector for 300m/550m transmission, 0 to 60°C operating temperature                                        |
| SFP-1GLSXL    | SFP module with 1 1000BaseLSX port with LC connector for 1km/2km transmission, 0 to 60°C operating temperature                                         |
| SFP-1GLXL     | SFP module with 1 1000BaseLX port with LC connector for 10 km transmission, 0 to 60°C operating temperature                                            |
| SFP-1GLHL     | SFP module with 1 1000BaseLH port with LC connector for 30 km transmission, 0 to 60°C operating temperature                                            |
| SFP-1GLHXL    | SFP module with 1 1000BaseLHX port with LC connector for 40 km transmission, 0 to 60°C operating temperature                                           |

|                 |                                                                                                                        |
|-----------------|------------------------------------------------------------------------------------------------------------------------|
| SFP-1GZXLC      | SFP module with 1 1000BaseZX port with LC connector for 80 km transmission, 0 to 60°C operating temperature            |
| SFP-1GEZXLC     | SFP module with 1 1000BaseEZ port with LC connector for 110 km transmission, 0 to 60°C operating temperature           |
| SFP-1GEZXLC-120 | SFP module with 1 1000BaseEZ port with LC connector for 120 km transmission, 0 to 60°C operating temperature           |
| SFP-1GSXLC-T    | SFP module with 1 1000BaseSX port with LC connector for 300m/550m transmission, -40 to 85°C operating temperature      |
| SFP-1GLSXLC-T   | SFP module with 1 1000BaseLSX port with LC connector for 1km/2km transmission, -40 to 85°C operating temperature       |
| SFP-1GLXLC-T    | SFP module with 1 1000BaseLX port with LC connector for 10 km transmission, -40 to 85°C operating temperature          |
| SFP-1GLHLC-T    | SFP module with 1 1000BaseLH port with LC connector for 30 km transmission, -40 to 85°C operating temperature          |
| SFP-1GLHXL-T    | SFP module with 1 1000BaseLHX port with LC connector for 40 km transmission, -40 to 85°C operating temperature         |
| SFP-1GZXLC-T    | SFP module with 1 1000BaseZX port with LC connector for 80 km transmission, -40 to 85°C operating temperature          |
| SFP-1GTXRJ45-T  | SFP module with 1 1000BaseT port with RJ45 connector for 100 m transmission, -40 to 75°C operating temperature         |
| SFP-10GSRLC-T   | SFP+ module with 1 10GBase-SR port, LC connector for 33m/82m/300m/400m transmission, -40 to 85°C operating temperature |
| SFP-10GLRLC-T   | SFP+ module with 1 10GBase-LR port, LC connector for 10 km transmission, -40 to 85°C operating temperature             |
| SFP-10GERLC-T   | SFP+ module with 1 10GBase-ER port, LC connector for 40 km transmission, -40 to 85°C operating temperature             |
| SFP-10GZRLC-T   | SFP+ module with 1 10GBase-ZR port, LC connector for 80 km transmission, -40 to 85°C operating temperature             |

## Cables

|                  |                                        |
|------------------|----------------------------------------|
| CN20070          | 10-pin RJ45 to DB9 female serial cable |
| PWC-C15US-3B-183 | C15 power cord with US plug, 1.83 m    |
| PWC-C15EU-3B-183 | C15 power cord with EU plug, 1.83 m    |

## Software

|                         |                                                                          |
|-------------------------|--------------------------------------------------------------------------|
| LIC-MXviewOne-NEW-XN-SR | MXview One node license with customizable node quantity (minimum 1 node) |
|-------------------------|--------------------------------------------------------------------------|

## Storage Kits

|                  |                                                                                                                                                                                          |
|------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| ABC-02-USB       | Configuration backup and restoration tool, firmware upgrade, and log file storage tool for managed Ethernet switches and routers, 0 to 60°C operating temperature                        |
| ABC-02-USB-T     | Configuration backup and restoration tool, firmware upgrade, and log file storage tool for managed Ethernet switches and routers, -40 to 75°C operating temperature                      |
| ABC-03-microSD-T | MicroSD-based configuration backup and restoration tool, firmware upgrades, and log file storage tool for managed Ethernet switches and WLAN products, -40 to 85°C operating temperature |

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