Data Sheet
Fujitsu PSWITCH 2048

Powerful, cost-efficient switch for data center Ethernet connectivity

Data centers continue to evolve, creating a need for an infrastructure that can support growth in virtual machines, distributed applications, data, as well as the transition to public and private cloud environments without compromising performance. Today’s networks need to support the flexible connectivity of any device from any place in a secure manner. They have to provide an automated quality of service management when assigning bandwidth to the various usage scenarios as this cannot be done fast enough on a manual basis.

Fujitsu has developed a suite of top-of-rack switches that support flexible and efficient scale-out server infrastructures, especially in combination with new modular servers. This approach results in several improvements, including infrastructure efficiency for cloud computing, end-to-end virtualization and consolidation. Close partnerships with network technology partners complement the portfolio for building complete IT infrastructures. A lot of new use cases are based on Ethernet networks, with high bandwidths and increasingly virtualized fabric architectures for building dynamic data centers. And it goes without saying that Fujitsu server and storage systems are fully compatible with our own products as well as products from our partners.

PSWITCH 2048
The FUJITSU PSWITCH 2048 delivers innovative technology to enhance and simplify networks. It is a 1U low-latency, Layer 2/3, Ethernet switch and provides a rich set of advanced networking features, making the PSWITCH 2048 an ideal platform for traditional Top-of-Rack (ToR) switch deployments. With support for forty-eight 10GbE BASE-T (PSWITCH 2048T) or SFP+ ports (PSWITCH 2048P) as well as six 40GbE QSFP+ ports, these switch provide the efficiency and flexibility you need to support cloud computing, virtualization and consolidation. For organizations seeking automated provisioning capabilities to improve IT agility, the PSWITCH 2048 accelerate time to production through automatic discovery of network devices. This reduces the initial efforts, ongoing maintenance time and costs. The switch is designed for the next-generation data centers with advanced features such as Data Center Bridging (DCB), Edge Virtual Bridging (EVB) and VXLAN Tunnel End Point (VTEP) to support large-scale virtualization and software-defined Networking. In order to adapt to the individual situation as best as possible, the switch can be used in various switch modes. Beside the default Layer 2 switching support it provides the possibility of the end host mode (EHM) to simplify the port settings for connecting to a network in operation. This functionality can be beneficial in blade transition projects. Despite all these features, the switch offers a cost-effective solution because there are no additional license costs for the number of used ports. The PSWITCH 2048 is ideally suited for a variety of different solutions such as hyper-converged infrastructures, e.g. VMware VSAN, Storage Spaces Direct (S2D) scenarios or also as dedicated storage network.
# Features & Benefits

<table>
<thead>
<tr>
<th>Main Features</th>
<th>Benefits</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>High-performance and Availability</strong></td>
<td>Enable the efficiency and flexibility you need to support cloud computing, virtualization, mobility, and consolidation.</td>
</tr>
<tr>
<td>▪ 48x 10GBASE-T and 6x QSFP+ Port</td>
<td></td>
</tr>
<tr>
<td>▪ 48x 10GBASE SFP+ and 6x QSFP+ Port</td>
<td></td>
</tr>
<tr>
<td><strong>Auto Discovery</strong></td>
<td>Reduce the initial effort of introducing the switch into network.</td>
</tr>
<tr>
<td>▪ Software discovers and identifies the switch and automatically set up the switch with pre-defined parameters to the application.</td>
<td></td>
</tr>
<tr>
<td>▪ End Host Mode (EHM)</td>
<td>Establish a set of secured ports to be connected to the network without any considerations about STP, VLAN, load balancing, or other settings.</td>
</tr>
<tr>
<td><strong>End Host Mode (EHM)</strong></td>
<td>Deliver key scalable features that meet the demands of today's virtualized and cloud multi-vendor environments.</td>
</tr>
<tr>
<td><strong>Data Center and Virtualization</strong></td>
<td>Various management interface for administrator as well as for the management software.</td>
</tr>
<tr>
<td>▪ Data Center Bridging (DCB)</td>
<td>Three management interfaces – console, management port, and inbound network interface. Remote management of the switch is available through these port or interface.</td>
</tr>
<tr>
<td>▪ FIP Snooping</td>
<td></td>
</tr>
<tr>
<td>▪ Edge Virtual Bridging (EVB)</td>
<td></td>
</tr>
<tr>
<td>▪ DCVPN gateway (VXLAN, VTEP, NVE)</td>
<td></td>
</tr>
<tr>
<td><strong>Switch Management</strong></td>
<td></td>
</tr>
<tr>
<td>▪ Command Line Interface (CLI)</td>
<td></td>
</tr>
<tr>
<td>▪ Simple Network Management Protocol (SNMP)</td>
<td></td>
</tr>
<tr>
<td>▪ Network Configuration Protocol (NETCONF)</td>
<td></td>
</tr>
<tr>
<td>▪ Open vSwitch Database (OVSDB)</td>
<td></td>
</tr>
</tbody>
</table>
## Technical details

### PSWITCH 2048

**Connection type**
- Ethernet ToR Switch
- 10/40 Gbit/s Ethernet Switch, Layer2 switching support / Layer3 Service support, End Host Mode (EHM)

### Interfaces

<table>
<thead>
<tr>
<th>Down-link ports</th>
<th>48 x 10 Gbit/s Eth (SFP+ / RJ45)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Up-link ports</td>
<td>6 x 40 Gbit/s Eth (QSFP+)</td>
</tr>
<tr>
<td>Management ports</td>
<td>1 x RJ45 Serial Port 1 x 10/100/1000Mbps LAN Port</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Order code</th>
<th>Application</th>
<th>Type / mode</th>
<th>Connector / cable Length</th>
</tr>
</thead>
<tbody>
<tr>
<td>S26361-F3989-E600</td>
<td>Ethernet 10 Gbit/s</td>
<td>SFP+ Twinax Cable / active</td>
<td>SFP+ / 2m or 5m</td>
</tr>
<tr>
<td>S26361-F3989-L102</td>
<td>Ethernet 10 Gbit/s</td>
<td>SFP+ Twinax Cable / active</td>
<td>SFP+ / 5m</td>
</tr>
<tr>
<td>S26361-F3989-L105</td>
<td>Ethernet 10 Gbit/s</td>
<td>SFP+ Twinax Cable / active</td>
<td>SFP+ / 10m</td>
</tr>
<tr>
<td>S26361-F3989-L110</td>
<td>Ethernet 10 Gbit/s</td>
<td>SFP+ Twinax Cable / active</td>
<td>SFP+ / 3m or 5m</td>
</tr>
<tr>
<td>S26361-F3873-E500</td>
<td>Ethernet 10 Gbit/s</td>
<td>SFP+ Twinax Cable / active</td>
<td>SFP+ / 3m or 5m</td>
</tr>
<tr>
<td>S26361-F3986-E400</td>
<td>Ethernet 40 Gbit/s</td>
<td>QSFP+ Twinax Cable / passive</td>
<td>QSFP+ / 2m or 5m</td>
</tr>
</tbody>
</table>

### Technical specifications

#### Layer 2 feature
- Virtual LAN (IEEE802.1Q)
- Link Aggregation (LAG)
- Spanning Tree Protocol
- Loop detection
- Link Down Relay
- Remote Switch Port Analyzer (RSPAN)
- Unidirection Link Detection (UDLD)
- End Host Mode (EHM)

#### Layer 3 feature
- IPv4 - ARP / ICMP / IRDP
- IPv6 - NDP
- Routing
- Routing Information Protocol (RIP / RIPng)
- Open Shortest Path First (OSPF)
- Boarder Gateway Protocol 4 (BGP4)
- Virtual Router Redundancy Protocol (VRRP)
- Equal Cost Multi-Path (ECMP)
- UDP Relay / IP Helper
- DNS Client and DNS Relay
- Link-Local Multicast Name Resolution (LLMNR)
- Virtual Routing and Forwarding (VRF)

#### Link aggregation
- Static LAG
- IEEE 802.1ax-2008 standard (LACP)
- support up to 48 ports in a LAG virtual port channels (VPCs)

#### Spanning tree
- Spanning Tree Protocol (STP)
- Rapid Spanning Tree Protocol (RSTP)
- Multiple Spanning Tree Protocol (MSTP)

#### DCB features
- Priority Flow Control (PFC)
- Enhanced Transmission Selection (ETS)
- Congestion Notification (CN)
- Data Center Bridging Extensions (DCBX)
## Technical specifications

### Network protocol and standards compatibility

<table>
<thead>
<tr>
<th>Protocol/Standard</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>IEEE 802.1ab LLDP</td>
<td>LLDP (Link Layer Discovery Protocol)</td>
</tr>
<tr>
<td>IEEE 802.1p Class of Service</td>
<td>Class of Service for priority-based queueing</td>
</tr>
<tr>
<td>IEEE 802.1d Spanning Tree Protocol</td>
<td>Spanning Tree Protocol for network convergence</td>
</tr>
<tr>
<td>IEEE 802.1Qa Congestion Notification</td>
<td>Congestion Notification for congestion control</td>
</tr>
<tr>
<td>IEEE 802.1Qaz Enhanced Transmission Selection (ETS)</td>
<td>Enhanced Transmission Selection for bandwidth management</td>
</tr>
<tr>
<td>IEEE 802.1Qbb Priority Flow Control (PFC)</td>
<td>Priority Flow Control for priority-based flow control</td>
</tr>
<tr>
<td>IEEE 802.1q VLAN</td>
<td>VLAN (Virtual LAN) for network segmentation</td>
</tr>
<tr>
<td>IEEE 802.1s Multiple Spanning Tree Protocol</td>
<td>Multiple Spanning Tree Protocol for network convergence in redundant topologies</td>
</tr>
<tr>
<td>IEEE 802.1w Rapid Spanning Tree Protocol</td>
<td>Rapid Spanning Tree Protocol for faster network convergence</td>
</tr>
<tr>
<td>IEEE 802.1x Port Based Network Access Control</td>
<td>Port Based Network Access Control for network access control</td>
</tr>
<tr>
<td>IEEE 802.1ax-2008 Link Aggregation</td>
<td>Link Aggregation for efficient use of bandwidth</td>
</tr>
<tr>
<td>IEEE 802.3x Flow Control</td>
<td>Flow Control for managing data flow</td>
</tr>
<tr>
<td>IEEE DCBX Data Center Bridging Exchange protocol proposal for 802.1 Qaz</td>
<td>DCBX (Data Center Bridging Exchange) protocol for data center convergence</td>
</tr>
</tbody>
</table>

### Performance

- **Switching bandwidth**: 720Gbps (1440Gbps duplex)
- **Address learning function**: Automatic address learning function to build the packet-forwarding information table. The table contains up to 96K MAC addresses.
- **Packet buffer memory**: 12 MB of packet buffer memory
- **Jumbo Frame support**: Support Jumbo Frame up to 9Kbyte
- **Forwarding modes**: Store-Forward and Cut-through available to minimize latency

### IP multicast features

- **IGMP Snooping**
- **MLD Snooping**
- **Multicast Snooping**
- **IGMP (Internet Group Management Protocol)** v2/v3
- **MLD (Multicast Listener Discovery)** v1/v2
- **DVMRP (Distance Vector Multicast Routing Protocol)**
- **PIM-DM (Protocol Independent Multicast - Dense Mode)**
- **PIM-SM (Protocol Independent Multicast - Sparse Mode)**

### VLAN

- **Port Based VLAN**
- **MAC Based VLAN**
- **Protocol Based VLAN**
- **IP Subnet Based VLAN**
- **Private VLAN**

### Management

- **Telnet/SSH**
- **NETCONF (Network Configuration Protocol)**
- **SNMP (Simple Network Management Protocol)**
- **RMON (Remote Monitoring)**
- **OVSD (Open vSwitch Database)**

### Dimensions / Weight

- **Dimensions (W x D x H)**: 440 x 460 x 44 mm
- **Weight**: 8.4 kg

### Environmental compliance

- **Operating ambient temperature**: 0 - 40 °C
- **Operating relative humidity**: 10 - 90% (relative humidity)

### Product

- **Europe**: CE
- **USA/Canada**: FCC Class A, UL/CSA
- **Global**: CB, RoHS
- **Japan**: VCCI, JATE
- **Russia**: EAC
- **South Korea**: KC
- **China**: CCC
- **Australia/New Zealand**: AS / NZS CISPR 22
- **Taiwan**: BSMI
<table>
<thead>
<tr>
<th>Country</th>
<th>Compliance link</th>
</tr>
</thead>
<tbody>
<tr>
<td>Saudi Arabia</td>
<td><a href="https://sp.ts.fujitsu.com/sites/certificates">https://sp.ts.fujitsu.com/sites/certificates</a></td>
</tr>
</tbody>
</table>
More information

Fujitsu products, solutions & services
In addition to Fujitsu PSWITCH 2048, Fujitsu provides a range of platform solutions. They combine reliable Fujitsu products with the best in services, know-how and worldwide partnerships.

Fujitsu Portfolio
Built on industry standards, Fujitsu offers a full portfolio of IT hardware and software products, services, solutions and cloud offering, ranging from clients to datacenter solutions and includes the broad stack of Business Solutions, as well as the full stack of Cloud offerings. This allows customers to select from alternative sourcing and delivery models to increase their business agility and to improve their IT operation’s reliability.

Computing Products
www.fujitsu.com/global/products/computing/

Software
www.fujitsu.com/software/

Fujitsu green policy innovation
Fujitsu Green Policy Innovation is our worldwide project for reducing burdens on the environment.
Using our global know-how, we aim to contribute to the creation of a sustainable environment for future generations through IT.
Please find further information at http://www.fujitsu.com/global/about/environment

More information
Learn more about Fujitsu PSWITCH 2048, please contact your Fujitsu sales representative or Fujitsu Business partner, or visit our website.

Copyrights
All rights reserved, including intellectual property rights. Designations may be trademarks and/or copyrights of the respective owner, the use of which by third parties for their own purposes may infringe the rights of such owner. For further information see http://www.fujitsu.com/emeia/resources/navigation/terms-of-use.html
Copyright 2020 FUJITSU LIMITED

Disclaimer
Please note that the data sheet reflects the technical specification with the maximum selection of components for the named system and not the detailed scope of delivery. The scope of delivery is defined by the selection of components at the time of ordering. The product was developed for normal business use.
Technical data is subject to modification and delivery subject to availability. Any liability that the data and illustrations are complete, actual or correct is excluded. Designations may be trademarks and/or copyrights of the respective owner, the use of which by third parties for their own purposes may infringe the rights of such owner.

CONTACT
FUJITSU LIMITED
Mies-van-der-Rohe-Straße 8
80807 München
Germany
Website: www.ts.fujitsu.com
2023-11-27 INT-EN