19”/2® ESW4100 Series

Switch power for the next level of Tactical IT

ESW4100 series presents a truly versatile switch platform that offers a wide range of high-speed interfaces for your cutting-edge applications. Regardless of conditions MilDef’s ESW4100 series switch is rock solid where the stakes are the highest, the requirements are the toughest, and when technology has game-changing potential.

This switch enables you to create advanced networks that provide secure and reliable connectivity for data, voice, and video communication, when and where it matters. Its true versatility can be utilized for vehicles, aircraft, helicopters, ships, etc.

Sleek. Powerful. Rugged.

Up to +50 ports
1, 10, 25 or 40G uplinks
L2 and L3 capabilities

MilDef´s one-stop-shop philosophy

When purchasing Tactical IT from MilDef we provide you with a one-stop-shop promise, hassle free delivery and with a maximal service level for worry free deployments and upgrades. A dedicated partner and a single point of contact that takes full responsibility. All you need, where and when you need it. Accessories, documentation, manuals, ILS, labelling, traceability, value adding verification and tests – all tailormade to your unique needs. Furthermore, when you need a clean up after a completed mission, we do the job, as well as keep you posted on new products that will seamlessly elevate your capabilities for future wins. It’s all there. It’s the MilDef way.

Product overview

The ESW4100 is a versatile platform that offers a wide range of high-speed interfaces, it comes with copper as well as fiber interfaces. The unit is designed from ground up by MilDef and can therefor offer customized solutions that fit your needs regarding interface speed, port type and port-density needs. The switch platform supports up to 50+ ports and can accommodate 1G, 10G, 25G and 40G interfaces in different configurations.

The switch supports Layer 2 Switching and Layer 3 Routing as well as native PoE and PoE+. The ESW4100 is based on a Microchip switch and the software that offers a wide range of switch features including Quality of Service, Security, Management, and timing. You can configure the unit both via Microchip ICLI (Industrial Command Line Interface) and the web-based management interface.

The ESW4100 series is ideal for environments with specialized form factor requirements such as size, weight, power, port-density, port-media, and ruggedization needs. All products are designed to fulfil military standards such as MIL-STD-461, MIL-STD-810, MIL-STD-1275 or airborne standard RTCA DO-160. The ESW4100 can be tailored to specific need, either with circular MIL connectors or rugged industrial connectors. Please refer to the customization section for further details on configuration options.

Guaranteed performance

MilDef products are designed for the long lifecycles of military programs and come with a lifetime support program to ensure your equipment maintains peak performance for many missions to come. We also guarantee the availability of spare parts for an additional 5 years after product end-of-life.

Small form factor

The MilDef 19"/2® form factor is optimized for reduced size, weight, and power (SWaP) to meet industry and military requirements without sacrificing reliability, ruggedness, or performance.

Primary features

FEATURE	BENEFIT
PORT CONFIGURATION	The Microchip SparX-5i platform offers a wide range of interface configurations including 1G, 10G, 25G and 40G interfaces. With support up to 50+ interface and up to 200 Gbps bandwidth, it can be used both for access and core networks.
LAYER 2 SWITCHING	It provides a rich set of Enterprise switching features such as advanced TCAM-based VLAN and QoS processing enabling delivery of differentiated services, and security through TCAM based frame processing.
LAYER 3 ROUTING	IPv4/IPv6 Layer 3 static and dynamic routing (IPv4 only) is supported.
SYNCHRONIZATION	Support for high precision time synchronization via TSN (IEEE 802.1AS) and NTP.
SECURITY	The switch comes with a rich security feature set to ensure highly secure communication for all communication types (voice, video, and data)
MANAGEABILITY	Comes with an easy-to-use WEB interface and rapid configuration through the Microchip ICLI interface
POWER OVER ETHERNET	Offer both native PoE and PoE+ with visibility and management from the management interface
QUALITY OF SERVICE	Enables you to prioritize traffic to ensure that mission-critical traffic is unaffected of low-priority traffic

Switch platform specifications

FEATURE	DESCRIPTION
FORWARDING RATE	Nonblocking wire-speed switching performance for all frame size
NON-BLOCKING SWITCH BANDWIDTH	Up to 200 Gbps (depending on switch variant)
MAXIMUM NUMBER OF PORTS	64
PACKET BUFFERT	32 Mb
MAC TABLE SIZE	32K
VLAN IDS	4K
IGMP GROUPS	4K
JUMBO FRAMES	10K

IPV4 UNICAST (LPM) ENTERIES	Up to 18K
IPV6 UNICAST (LPM) ENTERIES	Up to 9K
IPV4 TUNNELS	1K
VRP-LITE INSTANCES	64
CPU	Dual ARM Cortex-A53, 1GHz
DRAM	8GB
SD CARD	SD/MMC card support (option)

Software features

FEATURE	DESCRIPTION
FORWARDING RATE	Nonblocking wire-speed switching performance for all frame size
LAYER 2 SWITCHING	IEEE 802.1 + 802.3 standard, LLDP, Link Aggregation, Trunking, Mirroring, MSTP, RSTP
MULTICAST	IGMP snooping, IGMP filtering, IGMP querier, MLD snooping
QUALITY OF SERVICE	Policing, shaping and autoQoS
ROUTING	IPv4/IPv6 Layer 3 static and dynamic routing (IPv4 only) is supported.
POWER OVER ETHERNET	PoE, PoE+
MANAGEMENT	ICLI, Web UI, MIB, SNMP, Syslog, DHCP server
SECURITY	802.1x, DHCP snooping, dynamic ARP inspection, IP source guard, SSH, RADIUS, BPDU guard, MACSec*, ARP Snooping
TIMING AND SYNCHRONIZATION	NTP
HIGH AVAILABILITY	VRRP
VIRTUALIZAITON	VRF lite

** Depending on PHYs*

Flexible mounting

The 19"/2® standard enables flexible mounting options for a wide array of integration scenarios.
The unit can be mounted in a standard 19" rack, half racks, or directly to a surface and in any angle.

Mounting examples

Stacked

19” Rack

Half rack

Standards

Power standards

Polarity protection	Protected against polarization failure on the power input in the voltage range of normal operation

MIL-STD 1275E	Fully compliant

Environmental specification

Functional shock - operating	MIL-STD-810H, Method 516.8, Procedure I - Functional Shock. Table 516.8-IV, Terminal peak sawtooth pulse, Ground Materiel 40 g 11 ms
High temperature - operating	MIL-STD-810H, Method 501.7, Procedure II – Operation up to 71 °C (160 °F)*
High temperature - storage	MIL-STD-810H, Method 501.7, Procedure I – Storage 71 °C (160 °F)
Humidity	MIL-STD-810H, Method 507.6, Procedure II - Aggravated 95 ± 4% RH Ten 24-hour cycles
IP Class	IP65* or IP67*
Low air pressure - rapid decompression	MIL-STD-810H, Method 500.6, Procedure III - Rapid Decompression 2,438 m (8,000 ft) 12,192 m (40,000 ft)
Low air pressure - operating	MIL-STD-810H, Method 500.6, Procedure II - Operation/Air Carriage 4,572 m (15,000 ft)
Low temperature - operating	MIL-STD-810H, Method 502.7, Procedure II - Operation -40 °C (-40 °F)
Low temperature - storage	MIL-STD-810H, Method 502.7, Procedure I - Storage -40 °C (-40 °F)

Noise level	Maximum noise level of 40 dB SPL A-weighting at 1 m (3.3 ft) distance
Salt fog	MIL-STD-810H, Method 509.7 5 ± 1% (by weight) Two cycles, 24 h wet + 24h dry / cycle
Temperature shock - operating	MIL-STD 810H, Method 503.7, Procedure I-C, - Multi-Cycle Shocks from Constant Extreme Temperature 55 °C (131 °F) -40 °C (-40 °F)
Vibration - helicopter	MIL-STD-810H, Method 514.8, Procedure I - General vibration, Category 14 - Rotary wing aircraft - helicopter
Vibration - loose cargo	MIL-STD-810H, Method 514.8, Procedure II - Loose cargo transportation, Category 5 - Truck/ trailer - loose cargo
Vibration - tracked vehicles	MIL-STD-810H, Method 514.8, Procedure I - General Vibration, Category 20 - Ground vehicles - ground mobile, Tracked vehicles
Vibration - wheeled vehicle	MIL-STD-810H, Method 514.8, Procedure I - General Vibration, Category 20 - Ground vehicles - ground mobile, Wheeled vehicles

*Depending on configuration

EMC specification

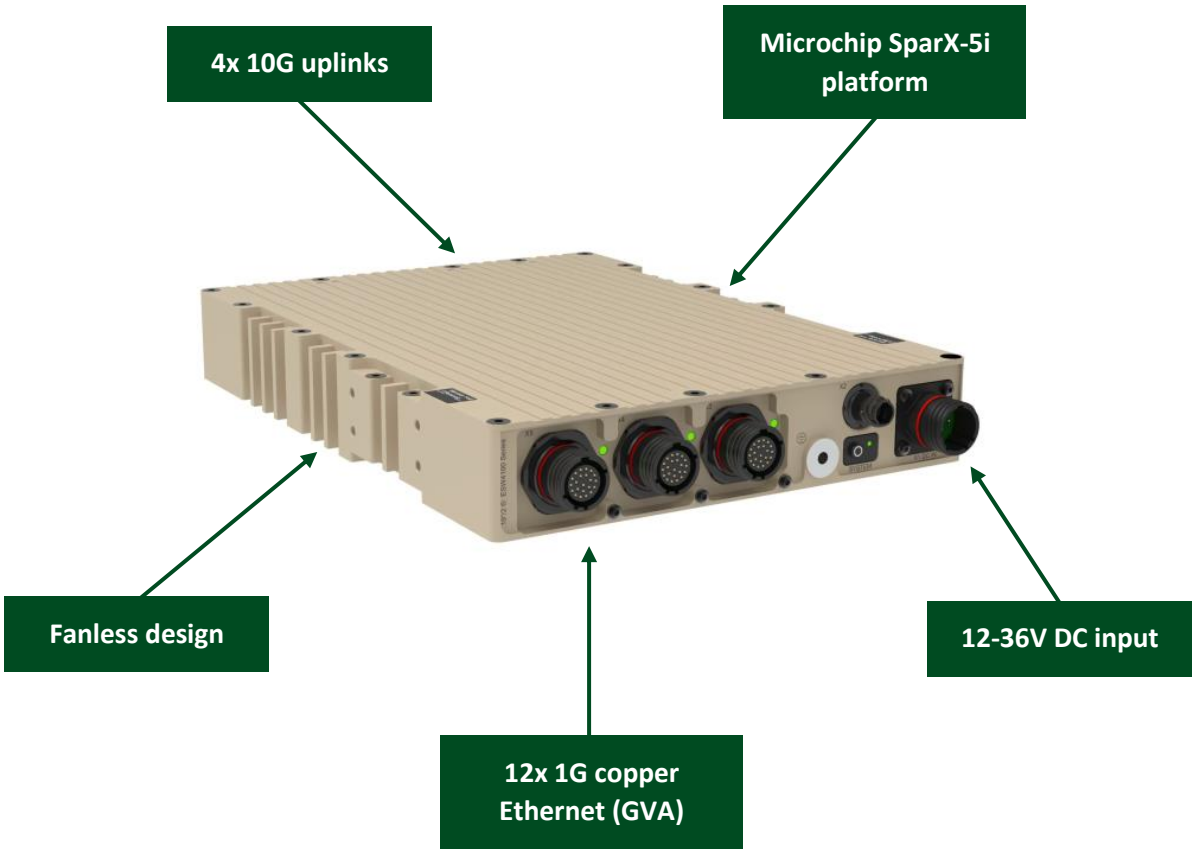
EMI conducted CE101	MIL-STD-461F Method: CE101
EMI conducted CE102	MIL-STD-461F, Method CE102 BASIC CURVE 10 kHz to 10 MHz
EMI radiated RE102	MIL-STD-461F Navy Mobile & Army 2 MHz - 18 GHz
EMS conducted CS101	MIL-STD-461F, Method CS101, conducted susceptibility, power leads. CURVE #1 30 Hz to 150 kHz

EMS conducted CS114	MIL-STD-461F Army, Ground 10 kHz - 200 MHz
EMS conducted CS115	MIL-STD-461F Conducted susceptibility, bulk cable injection, impulse excitation
EMS conducted CS116	MIL-STD-461F 10 kHz - 100 MHz
EMS radiated RS103	MIL-STD-461F Army 2 MHz - 1 GHz

Product range

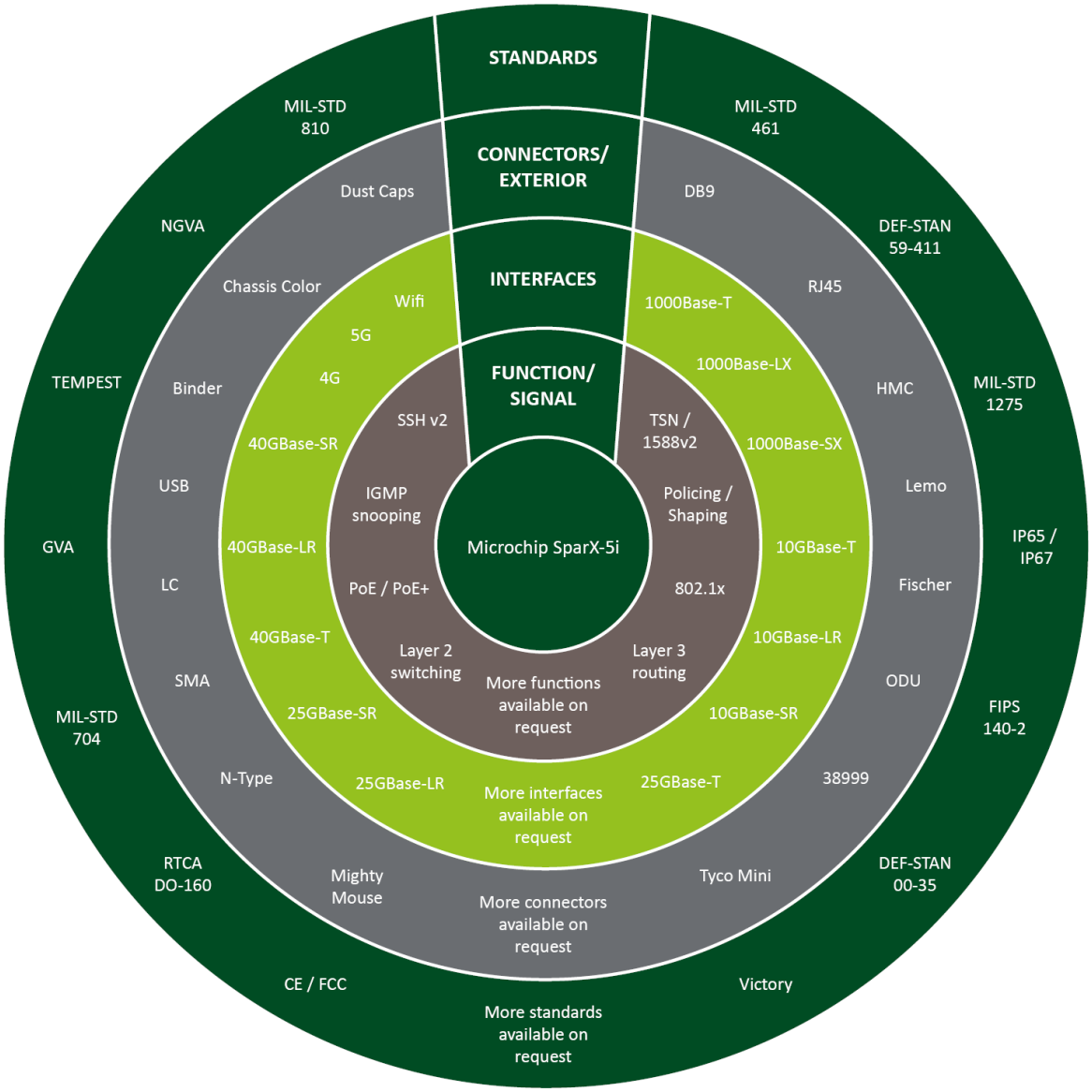
Roadmap products

The ESW4101 offers a high-speed switch with 10G uplinks and 1G access ports, but in the upcoming future there will be more variants as well.



Customization

The ESW4100 series is a very flexible platform, and MilDef offers a wide range of choices that enables the customer to design a tailed solution to specific needs. Get in touch with your local sales office to discuss your requirements.



Configuration diagram for the ESW4100 series

Examples of potential variants

C3354 – Switch with 1G ports, WiFi and 5G.

C3284 - switch with two 40G uplinks, twenty-four 1G access ports.

C3352 - switch with two 40G uplinks, twelve 10G uplinks. All ports are NGVA compliant.

C3353 - 2U switch with two 40G uplinks, forty-eight 1G access ports.