PROFINET RT, 3rd interface: PROFINET basic services, 4th interface: PROFIBUS, 1 ns bit performance, SIMATIC memory card

Our Product Introduction

Basic Information

- Place of Origin: Germany
- Brand Name: SIEMENS
- Certification: CE
- Model Number: 6ES7518-4UP00-0AB0
- Minimum Order Quantity: 1
- Price: USD
- Packaging Details: 15,10 x 15,40 x 4,60
- Delivery Time: 10-12Days
- Payment Terms: L/C, T/T
- Supply Ability: 100

Product Specification

Product Description

PROFINET RT, 3RD INTERFACE: PROFINET BASIC SERVICES, 4TH INTERFACE: PROFIBUS, 1 NS BIT PERFORMANCE, SIMATIC MEMORY CARD
Okay, based on the provided details, it seems you are referring to the SIEMENS 6ES7518-4FP00-1AB0 PROFINET RT controller module:
Product Description:
- The 6ES7518-4FP00-1AB0 is a SIMATIC S7-1500 CPU module with PROFINET RT (Real-Time) and PROFIBUS connectivity.
- It features 3 Ethernet interfaces for PROFINET RT communication, a 3rd interface for PROFINET basic services, and a 4th interface for PROFIBUS with 1ns bit performance.
- This module requires a SIMATIC memory card for program storage and additional functionality.
Key Features:
- PROFINET RT (Real-Time) services for deterministic, time-critical Ethernet-based communication.
- 3 x Ethernet interfaces for PROFINET RT connectivity.
- 3rd interface for PROFINET basic services for general Ethernet communication.
- 4th interface for PROFIBUS with 1ns bit performance for high-speed, deterministic communication.
- Suitable for time-critical applications such as motion control and manufacturing processes.
- Integrated PROFIBUS master functionality.
- Requires a SIMATIC memory card for program storage and additional features.
- Powerful CPU with 4 MB work memory and 20 MB load memory.
Connectivity:
- 3 x Ethernet/PROFINET RT interfaces for deterministic, real-time Ethernet communication.
- 1 x PROFINET basic services interface for general Ethernet communication.
- 1 x PROFIBUS interface for connecting PROFIBUS devices and networks.
Performance:
- 1ns bit performance on the PROFIBUS interface for high-speed, deterministic communication.
- Enables precise control and synchronization of connected devices.
SIMATIC Memory Card:
- The 6ES7518-4FP00-1AB0 module requires a SIMATIC memory card for program storage and additional functionality.
- The memory card provides the necessary storage capacity and enables features like firmware updates, backup, and restore functionality.
Certifications:
- The module likely has relevant industrial certifications and approvals, such as IEC 61131-2, IEC 61784-2 (PROFINET), UL, Hazardous Locations, and Marine approvals.
Please let me know if I have correctly identified the SIEMENS 6ES7518-4FP00-1AB0 PROFINET RT controller module based on the provided details.

General information	
Product type designation	CPU 1518TF-4 PN/DP
HW functional status	FS11
Firmware version	V3.1
● FW update possible	Yes
Product function	
● I&M data	Yes; I&M0 to I&M3
● Isochronous mode	Yes; Distributed and central; with minimum OB 6x cycle of 125 µs (distributed) and 1 ms (central)
● SysLog	Yes
Engineering with	
● STEP 7 TIA Portal configurable/integrated from version	V19 (FW V3.1) / V17 (FW V2.9) or higher
Configuration control	
via dataset	Yes
Display	
Screen diagonal [cm]	6.1 cm
Control elements	
Number of keys	6
Mode selector switch	1
Supply voltage	
Rated value (DC)	24 V
permissible range, lower limit (DC)	19.2 V
permissible range, upper limit (DC)	28.8 V
Reverse polarity protection	Yes
Mains buffering	
● Mains/voltage failure stored energy time	5 ms
Input current	
Current consumption (rated value)	1.55 A
Current consumption, max.	1.9 A

Inrush current, max.	1.9 A; Rated value
I^2t	0.4 $A^2 \cdot s$
Power	
Infeed power to the backplane bus	12 W
Power consumption from the backplane bus (balanced)	30 W
Power loss	
Power loss, typ.	24 W
Memory	
Number of slots for SIMATIC memory card	1
SIMATIC memory card required	Yes
Work memory	
● integrated (for program)	9 Mbyte
● integrated (for data)	60 Mbyte
Load memory	
● Plug-in (SIMATIC Memory Card), max.	32 Gbyte
Backup	
● maintenance-free	Yes
CPU processing times	
for bit operations, typ.	1 ns
for word operations, typ.	2 ns
for fixed point arithmetic, typ.	2 ns
for floating point arithmetic, typ.	6 ns
CPU-blocks	
Number of elements (total)	20 000; Blocks (OB, FB, FC, DB) and UDTs
DB	
● Number range	1 ... 60 999; subdivided into: number range that can be used by the user: 1 ... 59 999, and number range of DBs created via SFC 86: 60 000 ... 60 999
● Size, max.	16 Mbyte; For DBs with absolute addressing, the max. size is 64 KB
FB	
● Number range	0 ... 65 535
● Size, max.	1 Mbyte
FC	
● Number range	0 ... 65 535
● Size, max.	1 Mbyte
OB	
● Size, max.	1 Mbyte
● Number of free cycle OBs	100
● Number of time alarm OBs	20
● Number of delay alarm OBs	20
● Number of cyclic interrupt OBs	20; with minimum OB 3x cycle of 100 µs
● Number of process alarm OBs	50
● Number of DPV1 alarm OBs	3
● Number of isochronous mode OBs	3
● Number of technology synchronous alarm OBs	2
● Number of startup OBs	100
● Number of asynchronous error OBs	4
● Number of synchronous error OBs	2

● Number of diagnostic alarm OBs	1
Nesting depth	
● per priority class	24; Up to 8 possible for F-blocks
Counters, timers and their retentivity	
S7 counter	
● Number	2 048
Retentivity	
— adjustable	Yes
IEC counter	
● Number	Any (only limited by the main memory)
Retentivity	
— adjustable	Yes
S7 times	
● Number	2 048
Retentivity	
— adjustable	Yes
IEC timer	
● Number	Any (only limited by the main memory)
Retentivity	
— adjustable	Yes
Data areas and their retentivity	
Retentive data area (incl. timers, counters, flags), max.	768 kbyte; In total; available retentive memory for bit memories, timers, counters, DBs, and technology data (axes): 700 KB
Extended retentive data area (incl. timers, counters, flags), max.	20 Mbyte; When using PS 6 0W 24/48/60 V DC HF
Flag	
● Size, max.	16 kbyte
● Number of clock memories	8; 8 clock memory bit, grouped into one clock memory byte
Data blocks	
● Retentivity adjustable	Yes
● Retentivity preset	No
Local data	
● per priority class, max.	64 kbyte; max. 16 KB per block
Address area	
Number of IO modules	16 384; max. number of modules / submodules
I/O address area	
● Inputs	32 kbyte; All inputs are in the process image
● Outputs	32 kbyte; All outputs are in the process image
per integrated IO subsystem	
— Inputs (volume)	32 kbyte; max. 32 KB via X1; max. 8 KB via X2 or X4
— Outputs (volume)	32 kbyte; max. 32 KB via X1; max. 8 KB via X2 or X4
per CM/CP	
— Inputs (volume)	8 kbyte
— Outputs (volume)	8 kbyte
Subprocess images	
● Number of subprocess images, max.	32
Hardware configuration	
Number of distributed IO systems	64; A distributed I/O system is characterized not only by the integration of distributed I/O via PROFINET or PROFIBUS communication modules, but also by the connection of I/O via AS-i master modules or links (e.g. IE/PB-Link)
Number of DP masters	
● integrated	1
● Via CM	8; A maximum of 8 CMs/CPs (PROFIBUS, PROFINET, Ethernet) can be inserted in total
Number of IO Controllers	
● integrated	2
● Via CM	8; A maximum of 8 CMs/CPs (PROFIBUS, PROFINET, Ethernet) can be inserted in total
Rack	
● Modules per rack, max.	32; CPU + 31 modules
PtP CM	
● Number of PtP CMs	the number of connectable PtP CMs is only limited by the number of available slots
Time of day	
Clock	

● Type	Hardware clock
● Backup time	6 wk; At 40 °C ambient temperature, typically
● Deviation per day, max.	10 s; Typ.: 2 s
Operating hours counter	
● Number	16
Clock synchronization	
● supported	Yes
● to DP, master	Yes
● to DP, slave	Yes
● in AS, master	Yes
● in AS, slave	Yes
● on Ethernet via NTP	Yes
Interfaces	
Number of PROFINET interfaces	3
Number of PROFIBUS interfaces	1
1. Interface	
Interface types	
● RJ 45 (Ethernet)	Yes; X1
● Number of ports	2
● integrated switch	Yes
Protocols	
● IP protocol	Yes; IPv4
● PROFINET IO Controller	Yes
● PROFINET IO Device	Yes
● SIMATIC communication	Yes
● Open IE communication	Yes; Optionally also encrypted
● Web server	Yes
● Media redundancy	Yes
PROFINET IO Controller	
Services	
— Isochronous mode	Yes
— Direct data exchange	Yes; Requirement: IRT and isochronous mode (MRPD optional)
— IRT	Yes
— PROFIenergy	Yes; per user program
— Prioritized startup	Yes; Max. 32 PROFINET devices
— Number of connectable IO Devices, max.	512; In total, up to 1 000 distributed I/O devices can be connected via AS-i, PROFIBUS or PROFINET
— Of which IO devices with IRT, max.	64
— Number of connectable IO Devices for RT, max.	512
— of which in line, max.	512
— Number of IO Devices that can be simultaneously activated/deactivated, max.	8; in total across all interfaces
— Number of IO Devices per tool, max.	8
— Updating times	The minimum value of the update time also depends on communication share set for PROFINET IO, on the number of IO devices, and on the quantity of configured user data
— PROFINET Security Class	1
Update time for IRT	
— for send cycle of 125 µs	125 µs
— for send cycle of 187.5 µs	187.5 µs
— for send cycle of 250 µs	250 µs to 4 ms
— for send cycle of 500 µs	500 µs to 8 ms

— for send cycle of 1 ms	1 ms to 16 ms
— for send cycle of 2 ms	2 ms to 32 ms
— for send cycle of 4 ms	4 ms to 64 ms
— With IRT and parameterization of "odd" send cycles	Update time = set "odd" send clock (any multiple of 125 µs: 375 µs, 625 µs ... 3 875 µs)
Update time for RT	
— for send cycle of 250 µs	250 µs to 128 ms
— for send cycle of 500 µs	500 µs to 256 ms
— for send cycle of 1 ms	1 ms to 512 ms
— for send cycle of 2 ms	2 ms to 512 ms
— for send cycle of 4 ms	4 ms to 512 ms
PROFINET IO Device	
Services	
— Isochronous mode	No
— IRT	Yes; Minimum send cycle of 250 µs
— PROFIenergy	Yes; per user program
— Shared device	Yes
— Number of IO Controllers with shared device, max.	4
— activation/deactivation of I-devices	Yes; per user program
— Asset management record	Yes; per user program
— PROFINET Security Class	SNMP Configuration and DCP Read Only
2. Interface	
Interface types	
● RJ 45 (Ethernet)	Yes; X2
● Number of ports	1
● integrated switch	No
Protocols	
● IP protocol	Yes; IPv4
● PROFINET IO Controller	Yes
● PROFINET IO Device	Yes
● SIMATIC communication	Yes
● Open IE communication	Yes; Optionally also encrypted
● Web server	Yes
● Media redundancy	No
PROFINET IO Controller	
Services	
— Isochronous mode	No
— Direct data exchange	No
— IRT	No
— PROFIenergy	Yes; per user program
— Prioritized startup	No
— Number of connectable IO Devices, max.	128; In total, up to 1 000 distributed I/O devices can be connected via AS-i, PROFIBUS or PROFINET
— Number of connectable IO Devices for RT, max.	128
— of which in line, max.	128
— Number of IO Devices that can be simultaneously activated/deactivated, max.	8; in total across all interfaces

— Number of IO Devices per tool, max.	8
— Updating times	The minimum value of the update time also depends on communication share set for PROFINET IO, on the number of IO devices, and on the quantity of configured user data
— PROFINET Security Class	1
Update time for RT	
— for send cycle of 1 ms	1 ms to 512 ms
PROFINET IO Device	
Services	
— Isochronous mode	No
— IRT	No
— PROFIenergy	Yes; per user program
— Prioritized startup	No
— Shared device	Yes
— Number of IO Controllers with shared device, max.	4
— activation/deactivation of I-devices	Yes; per user program
— Asset management record	Yes; per user program
— PROFINET Security Class	SNMP Configuration and DCP Read Only
3. Interface	
Interface types	
● RJ 45 (Ethernet)	Yes; X3
● Number of ports	1
● integrated switch	No
Protocols	
● IP protocol	Yes; IPv4
● PROFINET IO Controller	No
● PROFINET IO Device	No
● SIMATIC communication	Yes
● Open IE communication	Yes; Optionally also encrypted
● Web server	Yes
4. Interface	
Interface types	
● RS 485	Yes; X4
● Number of ports	1
Protocols	
● PROFIBUS DP master	Yes
● PROFIBUS DP slave	No
● SIMATIC communication	Yes
PROFIBUS DP master	
● Number of connections, max.	48; for the integrated PROFIBUS DP interface
● Number of DP slaves, max.	125; In total, up to 1 000 distributed I/O devices can be connected via AS-i, PROFIBUS or PROFINET
Services	
— Equidistance	Yes
— Isochronous mode	Yes
— Activation/deactivation of DP slaves	Yes
Interface types	
RJ 45 (Ethernet)	
● 100 Mbps	Yes
● 1000 Mbps	Yes; Only possible at the X3 interface of the CPU 1518
● Autonegotiation	Yes
● Autocrossing	Yes
● Industrial Ethernet status LED	Yes
RS 485	

● Transmission rate, max.	12 Mbit/s
Protocols	
PROFIsafe	Yes; V2.4 / V2.6
Number of connections	
● Number of connections, max.	384; via integrated interfaces of the CPU and connected CPs / CMs
● Number of connections reserved for ES/HMI/web	10
● Number of connections via integrated interfaces	320
● Number of S7 routing paths	64; in total, only 16 S7-Routing connections are supported via PROFIBUS