



Figure similar

SIPLUS S7-1500 CPU 1518-4 PN/DP based on 6ES7518-4AP00-0AB0 with conformal coating, 0...+60 °C, central processing unit with work memory 4 MB for program and 20 MB for data, 1st interface: PROFINET IRT with 2-port switch, 2nd interface, Ethernet, 3rd interface, Ethernet, 4th interface, PROFIBUS, 1 ns bit performance, SIMATIC Memory Card required

General information	
Product type designation	CPU 1518-4 PN/DP
based on	<a href="#">6ES7518-4AP00-0AB0</a>
Product function	
<ul style="list-style-type: none"> <li>• Isochronous mode</li> </ul>	Yes
Engineering with	
<ul style="list-style-type: none"> <li>• STEP 7 TIA Portal configurable/integrated from version</li> </ul>	see entry ID: 109746275
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
Input current	
Current consumption (rated value)	1.55 A
Inrush current, max.	2.4 A; Rated value
I <sup>2</sup> t	0.45 A <sup>2</sup> ·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	
SIMATIC memory card required	Yes
Work memory	
<ul style="list-style-type: none"> <li>• integrated (for program)</li> </ul>	4 Mbyte
<ul style="list-style-type: none"> <li>• integrated (for data)</li> </ul>	20 Mbyte
Load memory	
<ul style="list-style-type: none"> <li>• Plug-in (SIMATIC Memory Card), max.</li> </ul>	32 Gbyte
Backup	
<ul style="list-style-type: none"> <li>• maintenance-free</li> </ul>	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
<b>CPU-blocks</b>	
Number of blocks (total)	10 000
<b>DB</b>	
• Number, max.	10 000; Number range: 1 to 65535
• Size, max.	10 Mbyte
<b>FB</b>	
• Number, max.	9 998; Number range: 1 to 65535
• Size, max.	512 kbyte
<b>FC</b>	
• Number, max.	9 999; Number range: 1 to 65535
• Size, max.	512 kbyte
<b>OB</b>	
• Size, max.	512 kbyte
• Number of free cycle OBs	100
• Number of time alarm OBs	20
• Number of delay alarm OBs	20
• Number of cyclic interrupt OBs	20
• Number of process alarm OBs	50
• Number of DPV1 alarm OBs	3
• Number of isochronous mode OBs	2
• 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
<b>Nesting depth</b>	
• per priority class	24
<b>Counters, timers and their retentivity</b>	
<b>S7 counter</b>	
• Number	2 048
Retentivity	
— adjustable	Yes
<b>IEC counter</b>	
• Number	Any (only limited by the main memory)
Retentivity	
— adjustable	Yes
<b>S7 times</b>	
• Number	2 048
Retentivity	
— adjustable	Yes
<b>IEC timer</b>	
• Number	Any (only limited by the main memory)
Retentivity	
— adjustable	Yes
<b>Data areas and their retentivity</b>	
Retentive data area (incl. timers, counters, flags), max.	768 kbyte; Available retentive memory for bit memories, timers, counters, DBs, and technology data (axes): 700 KB
<b>Flag</b>	
• Size, max.	16 kbyte
• Number of clock memories	8; 8 clock memory bit, grouped into one clock memory byte
<b>Data blocks</b>	
• Retentivity adjustable	Yes
• Retentivity preset	No
<b>Local data</b>	
• per priority class, max.	64 kbyte; max. 16 KB per block
<b>Address area</b>	
Number of IO modules	8 192
<b>I/O address area</b>	
• 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)	16 kbyte; 16 KB via the integrated PROFINET IO interface, 8 KB via the integrated DP interface
— Outputs (volume)	16 kbyte; 16 KB via the integrated PROFINET IO interface, 8 KB via the integrated DP interface
per CM/CP	
— Inputs (volume)	8 kbyte
— Outputs (volume)	8 kbyte
Subprocess images	
• Number of subprocess images, max.	32
<b>Hardware configuration</b>	
Number of distributed IO systems	
	10
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	1
• 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
• Number of lines, max.	1
PtP CM	
• Number of PtP CMs	the number of connectable PtP CMs is only limited by the number of available slots
<b>Time of day</b>	
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	8
Clock synchronization	
• supported	Yes
• to DP, master	Yes
• in AS, master	Yes
• in AS, device	Yes
• on Ethernet via NTP	Yes
<b>Interfaces</b>	
Number of PROFINET interfaces	
	3
Number of PROFIBUS interfaces	
	1
<b>1. Interface</b>	
Interface types	
• RJ 45 (Ethernet)	Yes
• Number of ports	2
• integrated switch	Yes
Protocols	
• PROFINET IO Controller	Yes
• PROFINET IO Device	Yes
• SIMATIC communication	Yes
• Open IE communication	Yes
• Web server	Yes
• Media redundancy	Yes
PROFINET IO Controller	
Services	
— PG/OP communication	Yes
— Isochronous mode	Yes
— IRT	Yes
— PROFIenergy	Yes
— 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

<ul style="list-style-type: none"> <li>— Of which IO devices with IRT, max.</li> <li>— Number of connectable IO Devices for RT, max.</li> <li>— of which in line, max.</li> <li>— Number of IO Devices that can be simultaneously activated/deactivated, max.</li> <li>— Number of IO Devices per tool, max.</li> <li>— Updating times</li> </ul>	PROFIBUS or PROFINET 64 256 256 8 8 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
<b>Update time for IRT</b>	
<ul style="list-style-type: none"> <li>— for send cycle of 250 µs</li> <li>— for send cycle of 500 µs</li> <li>— for send cycle of 1 ms</li> <li>— for send cycle of 2 ms</li> <li>— for send cycle of 4 ms</li> <li>— With IRT and parameterization of "odd" send cycles</li> </ul>	250 µs to 4 ms 500 µs to 8 ms 1 ms to 16 ms 2 ms to 32 ms 4 ms to 64 ms Update time = set "odd" send clock (any multiple of 125 µs: 375 µs, 625 µs ... 3 875 µs)
<b>Update time for RT</b>	
<ul style="list-style-type: none"> <li>— for send cycle of 250 µs</li> <li>— for send cycle of 500 µs</li> <li>— for send cycle of 1 ms</li> <li>— for send cycle of 2 ms</li> <li>— for send cycle of 4 ms</li> </ul>	250 µs to 128 ms 500 µs to 256 ms 1 ms to 512 ms 2 ms to 512 ms 4 ms to 512 ms
<b>PROFINET IO Device</b>	
<b>Services</b>	
<ul style="list-style-type: none"> <li>— PG/OP communication</li> <li>— Isochronous mode</li> <li>— IRT</li> <li>— PROFlenergy</li> <li>— Shared device</li> <li>— Number of IO Controllers with shared device, max.</li> </ul>	Yes No Yes Yes Yes 4
<b>2. Interface</b>	
<b>Interface types</b>	
<ul style="list-style-type: none"> <li>● RJ 45 (Ethernet)</li> <li>● Number of ports</li> <li>● integrated switch</li> </ul>	Yes 1 No
<b>Protocols</b>	
<ul style="list-style-type: none"> <li>● PROFINET IO Controller</li> <li>● PROFINET IO Device</li> <li>● SIMATIC communication</li> <li>● Open IE communication</li> <li>● Web server</li> </ul>	No No Yes Yes Yes
<b>3. Interface</b>	
<b>Interface types</b>	
<ul style="list-style-type: none"> <li>● RJ 45 (Ethernet)</li> <li>● Number of ports</li> <li>● integrated switch</li> </ul>	Yes 1 No
<b>Protocols</b>	
<ul style="list-style-type: none"> <li>● PROFINET IO Controller</li> <li>● PROFINET IO Device</li> <li>● SIMATIC communication</li> <li>● Open IE communication</li> <li>● Web server</li> </ul>	No No Yes Yes Yes
<b>PROFIBUS DP master</b>	
<ul style="list-style-type: none"> <li>● Number of connections, max.</li> <li>● max. number of DP devices</li> </ul>	48; for the integrated PROFIBUS DP interface 125; In total, up to 1 000 distributed I/O devices can be connected via PROFIBUS or PROFINET
<b>Services</b>	
<ul style="list-style-type: none"> <li>— PG/OP communication</li> <li>— Equidistance</li> <li>— Isochronous mode</li> </ul>	Yes Yes Yes

— activation/deactivation of DP devices Yes

#### 4. Interface

##### Interface types

- RS 485 Yes
- Number of ports 1

##### Protocols

- PROFIBUS DP master Yes
- PROFIBUS DP device No
- SIMATIC communication Yes

##### PROFIBUS DP master

- Number of connections, max. 48; for the integrated PROFIBUS DP interface

##### Services

- PG/OP communication Yes
- activation/deactivation of DP devices Yes

##### Interface types

##### RJ 45 (Ethernet)

- 100 Mbps Yes
- Autonegotiation Yes
- Autocrossing Yes
- Industrial Ethernet status LED Yes

##### RS 485

- Transmission rate, max. 12 Mbit/s

##### Protocols

PROFIsafe No

##### 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 192
- Number of S7 routing paths 64; in total, only 16 S7-Routing connections are supported via PROFIBUS

##### Redundancy mode

##### Media redundancy

- MRP Yes; as MRP redundancy manager and/or MRP client; max. number of devices in the ring: 50
- Switchover time on line break, typ. 200 ms
- Number of stations in the ring, max. 50

##### SIMATIC communication

- S7 routing Yes
- S7 communication, as server Yes
- S7 communication, as client Yes
- User data per job, max. See online help (S7 communication, user data size)

##### Open IE communication

- TCP/IP Yes
  - Data length, max. 64 kbyte
  - several passive connections per port, supported Yes
- ISO-on-TCP (RFC1006) Yes
  - Data length, max. 64 kbyte
- UDP Yes
  - Data length, max. 1 472 byte
- DHCP No
- SNMP Yes
- DCP Yes
- LLDP Yes

##### Web server

- HTTP Yes; Standard and user-defined pages
- HTTPS Yes; Standard and user-defined pages

##### Further protocols

- MODBUS Yes; MODBUS TCP

##### Isochronous mode

Equidistance Yes

##### S7 message functions

Number of login stations for message functions, max. 32

Program alarms	Yes
Number of configurable program messages, max.	10 000
Number of simultaneously active program alarms	1 000
<b>Test commissioning functions</b>	
Status block	Yes; Up to 16 simultaneously
Single step	No
<b>Status/control</b>	
<ul style="list-style-type: none"> <li>• Status/control variable</li> <li>• Variables</li> <li>• Number of variables, max. <ul style="list-style-type: none"> <li>— of which status variables, max.</li> <li>— of which control variables, max.</li> </ul> </li> </ul>	Yes Inputs, outputs, memory bits, DB, times, counters 200; per job 200; per job
<b>Forcing</b>	
<ul style="list-style-type: none"> <li>• Forcing, variables</li> <li>• Number of variables, max.</li> </ul>	Inputs, outputs 200
<b>Diagnostic buffer</b>	
<ul style="list-style-type: none"> <li>• present</li> <li>• Number of entries, max. <ul style="list-style-type: none"> <li>— of which powerfail-proof</li> </ul> </li> </ul>	Yes 3 200 1 000
<b>Traces</b>	
<ul style="list-style-type: none"> <li>• Number of configurable Traces</li> </ul>	8
<b>Interrupts/diagnostics/status information</b>	
<b>Diagnostics indication LED</b>	
<ul style="list-style-type: none"> <li>• RUN/STOP LED</li> <li>• ERROR LED</li> <li>• MAINT LED</li> <li>• Connection display LINK TX/RX</li> </ul>	Yes Yes Yes Yes
<b>Supported technology objects</b>	
<b>Motion Control</b>	
<ul style="list-style-type: none"> <li>• Speed-controlled axis <ul style="list-style-type: none"> <li>— Number of speed-controlled axes, max.</li> </ul> </li> <li>• Positioning axis <ul style="list-style-type: none"> <li>— Number of positioning axes, max.</li> </ul> </li> <li>• External encoders <ul style="list-style-type: none"> <li>— Number of external encoders, max.</li> </ul> </li> </ul>	Yes 128; Up to 128 axes in total (speed-controlled, positioning axis, external encoders) are supported 128; Up to 128 axes in total (speed-controlled, positioning axis, external encoders) are supported 128; Up to 128 axes in total (speed-controlled, positioning axis, external encoders) are supported
<b>Controller</b>	
<ul style="list-style-type: none"> <li>• PID_Compact</li> <li>• PID_3Step</li> </ul>	Yes; Universal PID controller with integrated optimization Yes; PID controller with integrated optimization for valves
<b>Counting and measuring</b>	
<ul style="list-style-type: none"> <li>• High-speed counter</li> </ul>	Yes
<b>Ambient conditions</b>	
<b>Ambient temperature during operation</b>	
<ul style="list-style-type: none"> <li>• horizontal installation, min.</li> <li>• horizontal installation, max.</li> <li>• vertical installation, min.</li> <li>• vertical installation, max.</li> </ul>	0 °C; = Tmin (incl. condensation/frost) 60 °C; Display: 50 °C, at an operating temperature of typically 50 °C, the display is switched off 0 °C; = Tmin 40 °C; Display: 40 °C, at an operating temperature of typically 40 °C, the display is switched off
<b>Ambient temperature during storage/transportation</b>	
<ul style="list-style-type: none"> <li>• min.</li> <li>• max.</li> </ul>	-40 °C 70 °C
<b>Altitude during operation relating to sea level</b>	
<ul style="list-style-type: none"> <li>• Installation altitude above sea level, max.</li> <li>• Ambient air temperature-barometric pressure-altitude</li> </ul>	5 000 m Tmin ... Tmax at 1 140 hPa ... 795 hPa (-1 000 m ... +2 000 m) // Tmin ... (Tmax - 10 K) at 795 hPa ... 658 hPa (+2 000 m ... +3 500 m) // Tmin ... (Tmax -20 K) at 658 hPa ... 540 hPa (+3 500 m ... +5 000 m)
<b>Relative humidity</b>	
<ul style="list-style-type: none"> <li>• With condensation, tested in accordance with IEC 60068-2-38, max.</li> </ul>	100 %; RH incl. condensation/frost (no commissioning under condensation conditions)
<b>Resistance</b>	

<b>Coolants and lubricants</b>	
— Resistant to commercially available coolants and lubricants	Yes; Incl. diesel and oil droplets in the air
<b>Use in stationary industrial systems</b>	
— to biologically active substances according to EN 60721-3-3	Yes; Class 3B2 mold, fungus and dry rot spores (with the exception of fauna); Class 3B3 on request
— to chemically active substances according to EN 60721-3-3	Yes; Class 3C4 (RH < 75 %) incl. salt spray acc. to EN 60068-2-52 (severity degree 3); *
— to mechanically active substances according to EN 60721-3-3	Yes; Class 3S4 incl. sand, dust, *
<b>Use on ships/at sea</b>	
— to biologically active substances according to EN 60721-3-6	Yes; Class 6B2 mold and fungal spores (excluding fauna); Class 6B3 on request
— to chemically active substances according to EN 60721-3-6	Yes; Class 6C3 (RH < 75 %) incl. salt spray acc. to EN 60068-2-52 (severity degree 3); *
— to mechanically active substances according to EN 60721-3-6	Yes; Class 6S3 incl. sand, dust; *
<b>Usage in industrial process technology</b>	
— Against chemically active substances acc. to EN 60654-4	Yes; Class 3 (excluding trichlorethylene)
— Environmental conditions for process, measuring and control systems acc. to ANSI/ISA-71.04	Yes; Level GX group A/B (excluding trichlorethylene; harmful gas concentrations up to the limits of EN 60721-3-3 class 3C4 permissible); level LC3 (salt spray) and level LB3 (oil)
<b>Remark</b>	
— Note regarding classification of environmental conditions acc. to EN 60721, EN 60654-4 and ANSI/ISA-71.04	* The supplied plug covers must remain in place over the unused interfaces during operation!
<b>Conformal coating</b>	
<ul style="list-style-type: none"> <li>• Coatings for printed circuit board assemblies acc. to EN 61086</li> <li>• Protection against fouling acc. to EN 60664-3</li> <li>• Military testing according to MIL-I-46058C, Amendment 7</li> <li>• Qualification and Performance of Electrical Insulating Compound for Printed Board Assemblies according to IPC-CC-830A</li> </ul>	<p>Yes; Class 2 for high reliability</p> <p>Yes; Type 1 protection</p> <p>Yes; Discoloration of coating possible during service life</p> <p>Yes; Conformal coating, Class A</p>
<b>configuration / header</b>	
configuration / programming / header	
Programming language	
— LAD	Yes
— FBD	Yes
— STL	Yes
— SCL	Yes
— GRAPH	Yes
<b>Know-how protection</b>	
• User program protection/password protection	Yes
• Copy protection	Yes
• Block protection	Yes
<b>Access protection</b>	
• Password for display	Yes
• Protection level: Write protection	Yes
• Protection level: Read/write protection	Yes
• Protection level: Complete protection	Yes
<b>programming / cycle time monitoring / header</b>	
• lower limit	adjustable minimum cycle time
• upper limit	adjustable maximum cycle time
<b>Dimensions</b>	
Width	175 mm
Height	147 mm
Depth	129 mm
<b>Weights</b>	
Weight, approx.	1 988 g

last modified:

