

SIPLUS S7-400 CPU417H FOR MEDIAL STRESS BASED ON 6ES7417-4HT14-0AB0 . NOT ALLOWED FOR SAFETY APPLICATIONS !!



Figure similar

General information	
Hardware product version	1
Firmware version	V4.5
Engineering with	
<ul style="list-style-type: none"> <li>Programming package</li> </ul>	STEP 7 V5.3 SP2 or higher with HW update
CiR - Configuration in RUN	
CiR synchronization time, basic load	60 ms
CiR synchronization time, time per I/O byte	10 µs
Supply voltage	
Rated value (DC)	
<ul style="list-style-type: none"> <li>24 V DC</li> </ul>	No; Power supply via system power supply
Input current	
from backplane bus 5 V DC, typ.	1.5 A
from backplane bus 5 V DC, max.	1.8 A
from backplane bus 24 V DC, max.	150 mA; Per DP interface
from interface 5 V DC, max.	90 mA; At each DP interface

Power loss	
Power loss, typ.	6.5 W
Memory	
Type of memory	other
Work memory	
<ul style="list-style-type: none"> <li>integrated</li> </ul>	30 Mbyte
<ul style="list-style-type: none"> <li>integrated (for program)</li> </ul>	15 Mbyte
<ul style="list-style-type: none"> <li>integrated (for data)</li> </ul>	15 Mbyte
<ul style="list-style-type: none"> <li>expandable</li> </ul>	No
Load memory	
<ul style="list-style-type: none"> <li>expandable FEPR0M</li> </ul>	Yes
<ul style="list-style-type: none"> <li>expandable FEPR0M, max.</li> </ul>	64 Mbyte
<ul style="list-style-type: none"> <li>integrated RAM, max.</li> </ul>	256 kbyte
<ul style="list-style-type: none"> <li>expandable RAM</li> </ul>	Yes
<ul style="list-style-type: none"> <li>expandable RAM, max.</li> </ul>	64 Mbyte
Backup	
<ul style="list-style-type: none"> <li>present</li> </ul>	Yes
<ul style="list-style-type: none"> <li>with battery</li> </ul>	Yes; all data
<ul style="list-style-type: none"> <li>without battery</li> </ul>	No
Battery	
Backup battery	
<ul style="list-style-type: none"> <li>Backup current, typ.</li> </ul>	970 $\mu$ A; Valid up to 40°C
<ul style="list-style-type: none"> <li>Backup current, max.</li> </ul>	1 980 $\mu$ A
<ul style="list-style-type: none"> <li>Backup time, max.</li> </ul>	Dealt with in the module data manual with the secondary conditions and the factors of influence
<ul style="list-style-type: none"> <li>Feeding of external backup voltage to CPU</li> </ul>	5 V DC to 15 V DC
CPU processing times	
for bit operations, typ.	0.018 $\mu$ s
for word operations, typ.	0.018 $\mu$ s
for fixed point arithmetic, typ.	0.018 $\mu$ s
for floating point arithmetic, typ.	0.054 $\mu$ s
CPU-blocks	
DB	
<ul style="list-style-type: none"> <li>Number, max.</li> </ul>	8 191; Number range: 1 - 8191
<ul style="list-style-type: none"> <li>Size, max.</li> </ul>	64 kbyte
FB	
<ul style="list-style-type: none"> <li>Number, max.</li> </ul>	6 144; Number range: 0 - 6143
<ul style="list-style-type: none"> <li>Size, max.</li> </ul>	64 kbyte
FC	
<ul style="list-style-type: none"> <li>Number, max.</li> </ul>	6 144; Number range: 0 - 6143

• Size, max.	64 kbyte
<b>OB</b>	
• Size, max.	64 kbyte
• Number of time alarm OBs	8
• Number of delay alarm OBs	4
• Number of cyclic interrupt OBs	9
• Number of process alarm OBs	8
<b>Nesting depth</b>	
• per priority class	24
• additional within an error OB	2
<b>Counters, timers and their retentivity</b>	
<b>S7 counter</b>	
• Number	2 048
<b>Retentivity</b>	
— adjustable	Yes
— lower limit	0
— upper limit	2 047
— preset	Z 0 to Z 7
<b>Counting range</b>	
— lower limit	0
— upper limit	999
<b>IEC counter</b>	
• present	Yes
• Type	SFB
<b>S7 times</b>	
• Number	2 048
<b>Retentivity</b>	
— adjustable	Yes
— lower limit	0
— upper limit	2 047
— preset	No times retentive
<b>Time range</b>	
— lower limit	10 ms
— upper limit	9 990 s
<b>IEC timer</b>	
• present	Yes
• Type	SFB
<b>Data areas and their retentivity</b>	
retentive data area in total	Total working and load memory (with backup battery)
<b>Flag</b>	
• Number, max.	16 kbyte

• Retentivity available	Yes
• Retentivity preset	MB 0 to MB 15
• Number of clock memories	8; in 1 memory byte
<b>Data blocks</b>	
• Number, max.	8 191; Number range: 1 - 8191
• Size, max.	64 kbyte
<b>Local data</b>	
• adjustable, max.	64 kbyte
• preset	32 kbyte
<b>Address area</b>	
<b>I/O address area</b>	
• Inputs	16 kbyte
• Outputs	16 kbyte
<b>of which distributed</b>	
— MPI/DP interface, inputs	2 kbyte
— MPI/DP interface, outputs	2 kbyte
— DP interface, inputs	8 kbyte
— DP interface, outputs	8 kbyte
<b>Process image</b>	
• Inputs, adjustable	16 kbyte
• Outputs, adjustable	16 kbyte
• Inputs, default	1 024 byte
• Outputs, default	1 024 byte
• consistent data, max.	244 byte
• Access to consistent data in process image	Yes
<b>Subprocess images</b>	
• Number of subprocess images, max.	15
<b>Digital channels</b>	
• Inputs	131 072
— of which central	131 072
• Outputs	131 072
— of which central	131 072
<b>Analog channels</b>	
• Inputs	8 192
— of which central	8 192
• Outputs	8 192
— of which central	8 192
<b>Hardware configuration</b>	
Number of expansion units, max.	21
connectable OPs	63 without message processing, 16 with message processing
Multicomputing	No

Interface modules	
• Number of connectable IMs (total), max.	6
• Number of connectable IM 460s, max.	6
• Number of connectable IM 463s, max.	4; Single mode only
Number of DP masters	
• integrated	2
• via CP	10
• Mixed mode IM + CP permitted	No
Number of operable FMs and CPs (recommended)	
• FM	See manual Automation System S7-400H fault-tolerant systems. Limited by number of slots and number of connections
• CP, PtP	See manual Automation System S7-400H fault-tolerant systems. Limited by number of slots and number of connections
• PROFIBUS and Ethernet CPs	14; Of which max. 10 CP as DP master
Slots	
• required slots	2
Time of day	
Clock	
• Hardware clock (real-time)	Yes
• retentive and synchronizable	Yes
• Resolution	1 ms
• Deviation per day (buffered), max.	1.7 ms; Power off
• Deviation per day (unbuffered) max.	8.6 ms; Power on
Operating hours counter	
• Number	8
• Number/Number range	0 to 7
• Range of values	0 to 32767 hours
• Granularity	1 hour
• retentive	Yes
Clock synchronization	
• supported	Yes
• to MPI, master	Yes
• to MPI, slave	Yes
• to DP, master	Yes
• to DP, slave	Yes
• in AS, master	Yes
• in AS, slave	Yes
Time difference in system when synchronizing via	
• MPI, max.	200 ms
Interfaces	
Number of RS 485 interfaces	2

Number of other interfaces	0
<b>1. Interface</b>	
Interface type	Integrated
Physics	RS 485 / PROFIBUS + MPI
Isolated	Yes
Power supply to interface (15 to 30 V DC), max.	150 mA
Number of connection resources	MPI: 44, DP: 32
<b>Functionality</b>	
• MPI	Yes
• PROFIBUS DP master	Yes
• PROFIBUS DP slave	No
<b>MPI</b>	
• Number of connections	44
• Transmission rate, max.	12 Mbit/s
<b>Services</b>	
— PG/OP communication	Yes
— Routing	Yes
— Global data communication	No
— S7 basic communication	No
— S7 communication	Yes
— S7 communication, as client	Yes
— S7 communication, as server	Yes
<b>DP master</b>	
• Number of connections, max.	32
• Transmission rate, max.	12 Mbit/s
• Number of DP slaves, max.	32
<b>Services</b>	
— PG/OP communication	Yes
— Routing	Yes
— Global data communication	No
— S7 basic communication	No
— S7 communication	Yes
— S7 communication, as client	Yes
— S7 communication, as server	Yes
— Equidistance	No
— SYNC/FREEZE	No
— Activation/deactivation of DP slaves	No
— Direct data exchange (slave-to-slave communication)	No
<b>Address area</b>	
— Inputs, max.	2 kbyte

— Outputs, max.	2 kbyte
<b>User data per DP slave</b>	
— User data per DP slave, max.	244 byte
— Inputs, max.	244 byte
— Outputs, max.	244 byte
— Slots, max.	244
— per slot, max.	128 byte

## 2. Interface

Interface type	Integrated
Physics	RS 485 / PROFIBUS + MPI
Isolated	Yes
Power supply to interface (15 to 30 V DC), max.	150 mA
Number of connection resources	32
<b>Functionality</b>	
• PROFIBUS DP master	Yes
• PROFIBUS DP slave	No
<b>DP master</b>	
• Number of connections, max.	32
• Transmission rate, max.	12 Mbit/s
• Number of DP slaves, max.	125
<b>Services</b>	
— PG/OP communication	Yes
— Routing	Yes
— Global data communication	No
— S7 basic communication	No
— S7 communication	Yes
— Equidistance	No
— SYNC/FREEZE	No
— Direct data exchange (slave-to-slave communication)	No
<b>Address area</b>	
— Inputs, max.	8 kbyte
— Outputs, max.	8 kbyte
<b>User data per DP slave</b>	
— User data per DP slave, max.	244 byte
— Inputs, max.	244 byte
— Outputs, max.	244 byte
— Slots, max.	244
— per slot, max.	128 byte

## 3. Interface

Interface type	Pluggable synchronization submodule (FO)
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Plug-in interface modules	Synchronization module IF 960 6AG1960-1AA04-4XA0 or 6AG1960-1AB04-4XA0
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#### 4. Interface

Interface type	Pluggable synchronization submodule (FO)
Plug-in interface modules	Synchronization module IF 960 6AG1960-1AA04-4XA0 or 6AG1960-1AB04-4XA0

#### Communication functions

PG/OP communication	Yes
<ul style="list-style-type: none"> <li>Number of connectable OPs without message processing</li> </ul>	63
<ul style="list-style-type: none"> <li>Number of connectable OPs with message processing</li> </ul>	16
Global data communication	
<ul style="list-style-type: none"> <li>supported</li> </ul>	No
S7 basic communication	
<ul style="list-style-type: none"> <li>supported</li> </ul>	No
S7 communication	
<ul style="list-style-type: none"> <li>supported</li> </ul>	Yes
<ul style="list-style-type: none"> <li>as server</li> </ul>	Yes
<ul style="list-style-type: none"> <li>as client</li> </ul>	Yes
<ul style="list-style-type: none"> <li>User data per job, max.</li> </ul>	64 kbyte
<ul style="list-style-type: none"> <li>User data per job (of which consistent), max.</li> </ul>	462 byte; 1 variable
S5 compatible communication	
<ul style="list-style-type: none"> <li>supported</li> </ul>	Yes; (via CP max. 10 and FC AG_SEND and FC AG_RECV)
<ul style="list-style-type: none"> <li>User data per job, max.</li> </ul>	8 kbyte
<ul style="list-style-type: none"> <li>User data per job (of which consistent), max.</li> </ul>	240 byte
<ul style="list-style-type: none"> <li>Number of simultaneous AG-SEND/AG-RECV orders per CPU, max.</li> </ul>	64/64
Standard communication (FMS)	
<ul style="list-style-type: none"> <li>supported</li> </ul>	Yes; Via CP and loadable FB
Number of connections	
<ul style="list-style-type: none"> <li>overall</li> </ul>	64
<ul style="list-style-type: none"> <li>usable for PG communication <ul style="list-style-type: none"> <li>reserved for PG communication</li> </ul> </li> </ul>	1
<ul style="list-style-type: none"> <li>adjustable for PG communication, max.</li> </ul>	0
<ul style="list-style-type: none"> <li>usable for OP communication <ul style="list-style-type: none"> <li>reserved for OP communication</li> </ul> </li> </ul>	1
<ul style="list-style-type: none"> <li>adjustable for OP communication, max.</li> </ul>	0
<ul style="list-style-type: none"> <li>usable for S7 basic communication <ul style="list-style-type: none"> <li>reserved for S7 basic communication</li> </ul> </li> </ul>	0
<ul style="list-style-type: none"> <li>adjustable for S7 basic communication, max.</li> </ul>	0

- usable for S7 communication
  - reserved for S7 communication 0
  - adjustable for S7 communication, max. 0
- usable for routing
  - reserved for routing 0
  - adjustable for routing, max. 0

### S7 message functions

Number of login stations for message functions, max.	16
Symbol-related messages	No
Block related messages	Yes
simultaneously active Alarm-S blocks, max.	200
Alarm 8-blocks <ul style="list-style-type: none"> <li>• Number of instances for alarm 8 and S7 communication blocks, max. 10 000</li> <li>• preset, max. 1 200</li> </ul>	Yes
Process control messages	Yes
Number of archives that can log on simultaneously (SFB 37 AR_SEND)	64

### Test commissioning functions

Status block	Yes
Single step	Yes
Number of breakpoints	4
<b>Status/control</b>	
<ul style="list-style-type: none"> <li>• Status/control variable Yes</li> <li>• Variables Inputs/outputs, memory bits, DBs, distributed I/Os, timers, counters</li> <li>• Number of variables, max. 70</li> </ul>	
<b>Forcing</b>	
<ul style="list-style-type: none"> <li>• Forcing Yes</li> <li>• Forcing, variables Inputs/outputs, bit memories, distributed I/Os</li> <li>• Number of variables, max. 512</li> </ul>	
<b>Diagnostic buffer</b>	
<ul style="list-style-type: none"> <li>• present Yes</li> <li>• Number of entries, max. 3 200           <ul style="list-style-type: none"> <li>— adjustable Yes</li> <li>— preset 120</li> </ul> </li> </ul>	

### Standards, approvals, certificates

CE mark	Yes
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### Ambient conditions

<b>Ambient temperature during operation</b>	
<ul style="list-style-type: none"> <li>• min. 0 °C; = Tmin</li> </ul>	

• max.	60 °C; = Tmax
<b>Extended ambient conditions</b>	
• relative to ambient temperature-atmospheric pressure-installation altitude	Tmin ... Tmax at 1080 hPa ... 795 hPa (-1000 m ... +2000 m) // Tmin ... (Tmax - 10K) at 795 hPa ... 658 hPa (+2000 m ... +3500 m) // Tmin ... (Tmax - 20K) at 658 hPa ... 540 hPa (+3500 m ... +5000 m)
<b>Relative humidity</b>	
— With condensation, tested in accordance with IEC 60068-2-38, max.	100 %; RH incl. condensation/frost (no commissioning under condensation conditions)
<b>Resistance</b>	
— against biologically active substances / conformity with EN 60721-3-3	Yes; Class 3B2 mold, fungus and dry rot spores (with the exception of fauna). The supplied connector covers must remain on the unused interfaces during operation!
— against chemically active substances / conformity with EN 60721-3-3	Yes; Class 3C4 (RH < 75%) incl. salt spray according to EN 60068-2-52 (degree of severity 3). The supplied connector covers must remain on the unused interfaces during operation!
— against mechanically active substances / conformity with EN 60721-3-3	Yes; Class 3S4 incl. sand, dust. The supplied connector covers must remain on the unused interfaces during operation!
<b>Configuration</b>	
<b>Configuration software</b>	
• STEP 7	Yes
<b>Programming</b>	
• Command set	see instruction list
• Nesting levels	8
• Access to consistent data in process image	Yes
• System functions (SFC)	see instruction list
• System function blocks (SFB)	see instruction list
<b>Programming language</b>	
— LAD	Yes
— FBD	Yes
— STL	Yes
— SCL	Yes
— CFC	Yes
— GRAPH	Yes
— HiGraph®	Yes
<b>Number of simultaneously active SFCs</b>	
— RD_REC	8
— WR_REC	8
— WR_PARM	8
— PARM_MOD	1
— WR_DPARM	2
— DPNRM_DG	8
— RDSYSST	8

— DP_TOPOL	1
<b>Number of simultaneously active SFBs</b>	
— RDREC	8
— WRREC	8
<b>Know-how protection</b>	
• User program protection/password protection	Yes
<b>Dimensions</b>	
Width	50 mm
Height	290 mm
Depth	219 mm
<b>Weights</b>	
Weight, approx.	995 g
<b>last modified:</b>	10/14/2016