SIEMENS

Data sheet 6ES7417-4HL04-0AB0

********** Replacement part ********* SIMATIC S7-400H, CPU 417H Central processing unit for S7-400H 4 interfaces: 1 MPI/DP, 1 DP and 2 for sync modules 20 MB memory (10 MB data/10 MB program)

General information	
Product type designation	CPU 417H
Supply voltage	
Rated value (DC)	Power supply via system power supply
Input current	
from backplane bus 5 V DC, max.	1.7 A
Power loss	
Power loss, typ.	6 W
Memory	
Type of memory	RAM
Work memory	
● integrated	20 Mbyte
● expandable	No
Load memory	
● expandable FEPROM	Yes; with Memory Card (FLASH)
● expandable FEPROM, max.	64 Mbyte
● integrated RAM, max.	256 kbyte
● expandable RAM	Yes; with Memory Card (RAM)
● expandable RAM, max.	64 Mbyte
Backup	
● present	Yes
● with battery	Yes; all data
● without battery	No
Battery	
Backup battery	
● Backup current, typ.	600 µA
● Backup current, max.	1 810 µA
● Feeding of external backup voltage to CPU	5 V DC to 15 V DC
CPU processing times	
for bit operations, typ.	0.03 µs
for word operations, typ.	0.03 µs
for fixed point arithmetic, typ.	0.03 µs
for floating point arithmetic, typ.	0.09 µs
CPU-blocks	
DB	
● Number, max.	8 192; DB 0 reserved
● Size, max.	64 kbyte
FB	
● Number, max.	6 144
● Size, max.	64 kbyte

FC	
● Number, max.	6 144
● Size, max.	64 kbyte
OB	
● Number, max.	see instruction list
● Size, max.	64 kbyte
Nesting depth	
● per priority class	24
● additional within an error OB	2
Counters, timers and their retentivity	
S7 counter	
● Number	2 048
Retentivity	
— adjustable	Yes
— lower limit	0
— upper limit	2 047
— preset	Z 0 to Z 7
Counting range	
— lower limit	1
— upper limit	999
IEC counter	
● present	Yes
● Type	SFB
S7 times	
● Number	2 048
Time range	
— lower limit	10 ms
— upper limit	9 990 s
IEC timer	
● present	Yes
● Type	SFB
Data areas and their retentivity	
Flag	
● Size, max.	16 kbyte
● Retentivity available	Yes; MB 0 to MB 16383
● Retentivity preset	MB 0 to MB 15
Address area	
I/O address area	
● Inputs	16 kbyte
● Outputs	16 kbyte
Process image	
● Inputs, adjustable	16 kbyte
● Outputs, adjustable	16 kbyte
● Inputs, default	1 024 byte
● Outputs, default	1 024 byte
Subprocess images	
● Number of subprocess images, max.	8
Digital channels	
● Inputs	131 072
— of which central	131 072
● Outputs	131 072
— of which central	131 072
Analog channels	
● Inputs	8 192
— of which central	8 192
● Outputs	8 192
— of which central	8 192
Hardware configuration	
Number of expansion units, max.	21
Multicomputing	No

Interface modules	
● Number of connectable IMs (total), max.	6
● Number of connectable IM 460s, max.	6
● Number of connectable IM 463s, max.	6; IM 463-2
Number of DP masters	
● integrated	2
● via CP	10
● via IM 467	0
● Mixed mode IM + CP permitted	No; IM 467 cannot be used jointly with CP 443-5 Ext.
● via interface module	0
Number of operable FMs and CPs (recommended)	
● FM	64; Limited by number of slots and number of connections
● CP, PtP	64; Limited by number of slots and number of connections
● CP, LAN	64; Limited by number of slots and number of connections
Slots	
● required slots	2
Time of day	
Clock	
● Hardware clock (real-time)	Yes
● retentive and synchronizable	Yes
Operating hours counter	
● Number	8
Clock synchronization	
● supported	Yes
1. Interface	
Interface type	MPI/PROFIBUS DP
Isolated	Yes
Interface types	
● RS 485	Yes
Protocols	
● MPI	Yes; Default setting
● PROFIBUS DP master	Yes
● PROFIBUS DP slave	No
MPI	
● Number of connections	44
● Transmission rate, max.	12 Mbit/s
Services	
— PG/OP communication	Yes
— Global data communication	No
— S7 basic communication	No
— S7 communication	Yes
— S7 communication, as client	Yes
— S7 communication, as server	Yes
PROFIBUS DP master	
● Number of connections, max.	32
● Transmission rate, max.	12 Mbit/s
● Number of DP slaves, max.	32; Number of slots, max. 512
Services	
— PG/OP communication	Yes
— Global data communication	No
— S7 basic communication	No
— S7 communication	No
— S7 communication, as client	No
— S7 communication, as server	No
— Equidistance	No
— SYNC/FREEZE	No
— Activation/deactivation of DP slaves	No
— Direct data exchange (slave-to-slave communication)	No
Address area	
— Inputs, max.	2 kbyte

— Outputs, max.	2 kbyte
User data per DP slave	
— Inputs, max.	244 byte
— Outputs, max.	244 byte
2. Interface	
Interface type	PROFIBUS DP
Isolated	Yes
Interface types	
● RS 485	Yes
Protocols	
● PROFIBUS DP master	Yes
● PROFIBUS DP slave	No
● Point-to-point connection	No
PROFIBUS DP master	
● Number of connections, max.	32
● Transmission rate, max.	12 Mbit/s
● Number of DP slaves, max.	125; Number of slots, max. 2 048
Services	
— PG/OP communication	Yes
— Global data communication	No
— S7 basic communication	No
— S7 communication	No
— S7 communication, as client	No
— S7 communication, as server	No
— Equidistance	No
— SYNC/FREEZE	No
— Activation/deactivation of DP slaves	No
— Direct data exchange (slave-to-slave communication)	No
Address area	
— Inputs, max.	8 kbyte
— Outputs, max.	8 kbyte
User data per DP slave	
— Inputs, max.	244 byte
— Outputs, max.	244 byte
communication functions / header	
PG/OP communication	Yes
Global data communication	
● supported	No
S7 basic communication	
● communication function / S7 basic communication	No
S7 communication	
● supported	Yes
● as server	Yes
● as client	Yes
● User data per job, max.	64 kbyte
S5 compatible communication	
● supported	Yes; via CP and loadable FC
● User data per job, max.	8 kbyte
Standard communication (FMS)	
● supported	Yes; Via CP and loadable FB
● User data per job, max.	Dependent on CP
Number of connections	
● overall	64
● usable for PG communication	
— reserved for PG communication	1
— adjustable for PG communication, max.	0
● usable for OP communication	
— reserved for OP communication	1
— adjustable for OP communication, max.	0
● usable for S7 basic communication	

— reserved for S7 basic communication	0
— adjustable for S7 basic 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
configuration / header	
Configuration software	
● STEP 7	Yes; V5.0 SP2
configuration / programming / header	
Programming language	
— LAD	Yes
— FBD	Yes
— STL	Yes
— SCL	Yes
— CFC	Yes
— GRAPH	Yes
— HiGraph®	Yes
Know-how protection	
● User program protection/password protection	Yes
Dimensions	
Width	50 mm
Height	290 mm
Depth	219 mm
Weights	
Weight, approx.	1 070 g

last modified: 9/11/2023