

20.9 H-CPU as of 08/04 (as of PCS 7 V6.1)

Product name	Article no. Firmware version	Brief description	Properties (Page 135)			
			F	C	R	T
CPU 414-4H	6ES7 414-4HJ04-0AB0 V4.x	S7 CPU; high availability and fail-safe capability; work memory 0.7 MB code and 0.7 MB data; 0.08 ms/1000 instructions; 8 KB DI/O; 32 connections; 1 DP / MPI, 1 DP and 2 slots for H-sync modules	W	X		01/ 10
CPU 417-4H	6ES7 417-4HL04-0AB0 V4.x	S7 CPU; high availability and fail-safe capability; work memory 10 MB code and 10 MB data; 0.03 ms/1000 instructions; 16 KB DI/O; 64 connections; 1 DP / MPI, 1 DP and 2 slots for H-sync modules	W	X		01/ 10

20.10 CPU as of 08/04 (as of PCS 7 V6.1)

Product name	Article no. Firmware version	Brief description	Properties (Page 135)			
			F	C	R	T
CPU 414-3	6ES7 414-3XJ04-0AB0 V4.x	S7 CPU; work memory 0.7 MB code and 0.7 MB data; 0.06 ms/1000 instructions.; 8 KB DI/O; 32 connections; 1 DP / MPI, 1 DP and 1 slot for IF-modules; send and receive capability for direct data exchange; constant bus cycle time and isochronous processing; routing	W	X		03/ 07
CPU 416-2	6ES7 416-2XK04-0AB0 V4.x	S7 CPU; work memory 1.4 MB code and 1.4 MB data; 0.04 ms/1000 instructions; 16 KB DI/O; 64 connections; 1 DP / MPI, 1 DP; send and receive capability for direct data exchange; constant bus cycle time and isochronous processing; routing	W	X		03/ 07

Applicability

This list of instructions applies to the CPUs listed below.

Name	Order number	subsequently described as ¹⁾
CPU 412-1	6ES7412-1XF04-0AB0	CPU 412
CPU 412-2	6ES7412-2XG04-0AB0	
CPU 414-2	6ES7414-2XG04-0AB0	CPU 414
CPU 414-3	6ES7414-3XJ04-0AB0	
CPU 414-4H	6ES7414-4HJ04-0AB0	
CPU 416-2	6ES7416-2XK04-0AB0	CPU 416
CPU 416F-2	6ES7416-2FK04-0AB0	
CPU 416-3	6ES7416-3XL04-0AB0	
CPU 417-4	6ES7417-4XL04-0AB0	CPU 417
CPU 417-4 H	6ES7417-4HL04-0AB0	

¹⁾ except in the tables, where a detailed differentiation is necessary

Address Identifier and Parameter Ranges

Addr. ID	Parameter Range				Description
	CPU 412	CPU 414	CPU 416	CPU 417	
Q ²⁾	0.0 to 127.7	0.0 to 255.7	0.0 to 511.7	0.0 to 1023.7	Output (in PIQ)
QB ²⁾	0 to 127	0 to 255	0 to 511	0 to 1023	Output byte (in PIQ)
QW ²⁾	0 to 126	0 to 254	0 to 510	0 to 1022	Output word (in PIQ)
QD ²⁾	0 to 124	0 to 252	0 to 508	0 to 1020	Output double word (in PIQ)
DBX	0.0 to 65533.7 ¹⁾	0.0 to 65533.7	0.0 to 65533.7	0.0 to 65533.7	Data bit in data block
DB	1 to 511	1 to 4095	1 to 4095	1 to 8191	Data block
DBB	0 to 65533 ¹⁾	0 to 65533	0 to 65533	0 to 65533	Data byte in DB
DBW	0 to 65532 ^{*1)}	0 to 65532	0 to 65532	0 to 65532	Data word in DB
DBD	0 to 65530 ¹⁾	0 to 65530	0 to 65530	0 to 65530	Data double word in DB
DIX	0.0 to 65533.7 ¹⁾	0.0 to 65533.7	0.0 to 65533.7	0.0 to 65533.7	Data bit in instance DB
DI	1 to 511	1 to 4095	1 to 4095	1 to 8191	Instance data block
DIB	0 to 65533 ¹⁾	0 to 65533	0 to 65533	0 to 65533	Data byte in instance DB
DIW	0 to 65532 ¹⁾	0 to 65532	0 to 65532	0 to 65532	Data word in instance DB
DID	0 to 65530 ¹⁾	0 to 65530	0 to 65530	0 to 65530	Data double word instance DB

1) Also restricted by the size of the working memory.

2) Default setting can be changed, see Technical Specifications

Address Identifier and Parameter Ranges, continued

Addr. ID	Parameter Range				Description
	CPU 412	CPU 414	CPU 416	CPU 417	
I ²⁾	0.0 to 127.7	0.0 to 255.7	0.0 to 511.7	0.0 to 1023.7	Input bit (in PII)
IB ²⁾	0 to 127	0 to 255	0 to 511	0 to 1023	Input byte (in PII)
IW ²⁾	0 to 126	0 to 254	0 to 510	0 to 1022	Input word (in PII)
ID ²⁾	0 to 124	0 to 252	0 to 508	0 to 1020	Input double word (in PII)
L ²⁾	0.0 to 4095.7	0.0 to 8191.7	0.0 to 16383.7	0.0 to 32767.7	Local data
LB ²⁾	0 to 4095	0 to 8191	0 to 16383	0 to 32767	Local data byte
LW ²⁾	0 to 4094	0 to 8190	0 to 16382	0 to 32766	Local data word
LD ²⁾	0 to 4092	0 to 8188	0 to 16380	0 to 32764	Local data double word
M	0.0 to 4095.7	0.0 to 8191.7	0.0 to 16383.7	0.0 to 16383.7	Bit memory
MB	0 to 4095	0 to 8191	0 to 16383	0 to 16383	memory byte
MW	0 to 4094	0 to 8190	0 to 16382	0 to 16382	memory word
MD	0 to 4092	0 to 8188	0 to 16380	0 to 16380	memory double word

²⁾ Default setting can be changed, see Technical Specifications

Address Identifier and Parameter Ranges, continued

Addr. ID	Parameter Range				Description
	CPU 412	CPU 414	CPU 416	CPU 417	
PQB	0 to 4095	0 to 8191	0 to 16383	0 to 16383	Peripheral output byte (direct I/O access)
PQW	0 to 4094	0 to 8190	0 to 16382	0 to 16382	Peripheral output word (direct I/O access)
PQD	0 to 4092	0 to 8188	0 to 16380	0 to 16380	Peripheral output double word (direct I/O access)
PIB	0 to 4095	0 to 8191	0 to 16383	0 to 16383	Peripheral input byte (direct I/O access)
PIW	0 to 4094	0 to 8190	0 to 16382	0 to 16382	Peripheral input word (direct I/O access)
PID	0 to 4092	0 to 8188	0 to 16380	0 to 16380	Peripheral output double word (direct I/O access)
T	0 to 2047	0 to 2047	0 to 2047	0 to 2047	Timer
C	0 to 2047	0 to 2047	0 to 2047	0 to 2047	Counter

V1.7		Industrial Ethernet CP	CP443-1	CP443-1	CP443-1	CP443-1	CP 443-1 Advanced	CP 443-1 Advanced	CP 443-1 Advanced	CP 443-1 Advanced	CP 443-1 RNA ⁷⁾	CP 443-1 UA ⁷⁾
		Order number	6GK7443-1EX10-0XE0	6GK7443-1EX11-0XE0	6GK7443-1EX20-0XE0	6GK7443-1EX30-0XE0	6GK7443-1EX40-0XE0	6GK7443-1EX41-0XE0	6GK7443-1GX20-0XE0	6GK7443-1GX30-0XE0	6GK7443-1RX00-0XE0	6GK7443-1UX00-0XE0
CPU	Order number	from firmware version										
CPU 412-1	6ES7412-1XF01-0AB0	1	x	x	–	–	–	–	–	–	–	–
	6ES7412-1XF02-0AB0	2	x	x	–	–	–	–	–	–	–	–
	6ES7412-1XF03-0AB0	1 / V1.1.0	x	x	–	–	–	–	–	–	–	–
		V3.1.3	x	x	–	–	–	–	–	–	–	–
	6ES7412-1XF04-0AB0	V4.0	x	x	– ³⁾	– ³⁾	x	x	– ³⁾	– ³⁾	–	–
		V4.1	x	x	x ⁶⁾	x ⁶⁾	x	x	x ⁶⁾	x ⁶⁾	–	–
	6ES7412-1XJ05-0AB0	V5.0	x	x	– ⁴⁾	– ⁴⁾	x ¹⁾	x	– ⁴⁾	– ⁴⁾	x ¹⁰⁾	x ¹⁰⁾
		V5.1	x	x	x ⁶⁾	x ⁶⁾	x	x	x ⁷⁾	x ⁷⁾	x ¹⁰⁾	x ¹⁰⁾
		V5.2.1	x	x	x	x	x	x	x	x	x ¹⁰⁾	x ¹⁰⁾
		V5.3	x	x	x	x	x	x	x	x	x ¹⁰⁾	x ¹⁰⁾
	6ES7412-1XJ07-0AB0	V7.0	x	x	x	x	x	x	x	x	x	x
CPU 412-2	6ES7412-2XG00-0AB0	1 / V1.1.0	x	x	–	–	–	–	–	–	–	–
	6ES7412-2XG00-0AB0	V3.1.3	x	x	–	–	–	–	–	–	–	–
	6ES7412-2XG04-0AB0	V4.0	x	x	– ³⁾	– ³⁾	x	x	– ³⁾	– ³⁾	–	–
		V4.1	x	x	x ⁶⁾	x ⁶⁾	x	x	x ⁶⁾	x ⁶⁾	–	–
	6ES7412-2XJ05-0AB0	V5.0	x	x	– ⁴⁾	– ⁴⁾	x ¹⁾	x	– ⁴⁾	– ⁴⁾	x ¹⁰⁾	x ¹⁰⁾
		V5.1	x	x	x ⁶⁾	x ⁶⁾	x	x	x ⁷⁾	x ⁷⁾	x ¹⁰⁾	x ¹⁰⁾
		V5.2.1	x	x	x	x	x	x	x	x	x ¹⁰⁾	x ¹⁰⁾
		V5.3	x	x	x	x	x	x	x	x	x ¹⁰⁾	x ¹⁰⁾
CPU 412-2PN	6ES7412-2EK06-0AB0	V6.0	x	x	x	x	x	x	x	x	x	x
	6ES7412-2EK06-0AB0	V7.0	x	x	x	x	x	x	x	x	x	x
CPU 412-3H	6ES7412-3HJ14-0AB0	V4.5.0	x	x	x ⁶⁾	x ⁶⁾¹³⁾	–	–	x ⁶⁾	x ⁶⁾¹³⁾	x ¹¹⁾	–
CPU 412-5H PN/DP	6ES7412-5HK06-0AB0	V6.0	–	x ¹³⁾	x ⁷⁾	x ⁷⁾	–	–	x ⁷⁾	x ⁷⁾	x	x
CPU 413	6ES7413-1XG01-0AB0	1	x	x	–	–	–	–	–	–	–	–
	6ES7413-1XG02-0AB0	1	x	x	–	–	–	–	–	–	–	–
CPU 413-2	6ES7413-2XG01-0AB0	1	x	x	–	–	–	–	–	–	–	–
	6ES7413-2XG02-0AB0	1	x	x	–	–	–	–	–	–	–	–
CPU 414	6ES7414-1XG01-0AB0	1	x	x	–	–	–	–	–	–	–	–
	6ES7414-1XG02-0AB0	2	x	x	–	–	–	–	–	–	–	–
CPU 414-2	6ES7414-2XJ00-0AB0	3	x	x	–	–	–	–	–	–	–	–
	6ES7414-2XJ01-0AB0	2	x	x	–	–	–	–	–	–	–	–
	6ES7414-2XG01-0AB0	1	x	x	–	–	–	–	–	–	–	–
	6ES7414-2XG02-0AB0	2	x	x	–	–	–	–	–	–	–	–
	6ES7414-2XG03-0AB0	1 / V1.1.0	x	x	–	–	–	–	–	–	–	–
	6ES7414-2XG04-0AB0	V4.0	x	x	– ³⁾	– ³⁾	x	x	– ³⁾	– ³⁾	–	–
		V4.1	x	x	x ⁶⁾	x ⁶⁾	x	x	x ⁶⁾	x ⁶⁾	–	–
	6ES7414-2XK05-0AB0	V5.0	x	x	– ⁴⁾	– ⁴⁾	x ¹⁾	x	– ⁴⁾	– ⁴⁾	x ¹⁰⁾	x ¹⁰⁾
		V5.1	x	x	x ⁶⁾	x ⁶⁾	x	x	x ⁷⁾	x ⁷⁾	x ¹⁰⁾	x ¹⁰⁾
		V5.2.1	x	x	x	x	x	x	x	x	x ¹⁰⁾	x ¹⁰⁾
		V5.3	x	x	x	x	x	x	x	x	x ¹⁰⁾	x ¹⁰⁾
	6ES7414-2XL07-0AB0	V7.0	x	x	x	x	x	x	x	x	x	x
CPU 414-3	6ES7414-3XJ00-0AB0	1 / V1.1.0	x	x	–	–	–	–	–	–	–	–
	6ES7414-3XJ04-0AB0	V4.0	x	x	– ³⁾	– ³⁾	x	x	– ³⁾	– ³⁾	–	–
		V4.1	x	x	x ⁶⁾	x ⁶⁾	x	x	x ⁶⁾	x ⁶⁾	–	–
	6ES7414-3XM05-0AB0	V5.0	x	x	– ⁴⁾	– ⁴⁾	x ¹⁾	x	– ⁴⁾	– ⁴⁾	x ¹⁰⁾	x ¹⁰⁾
		V5.1	x	x	x ⁶⁾	x ⁶⁾	x	x	x ⁷⁾	x ⁷⁾	x ¹⁰⁾	x ¹⁰⁾
		V5.2.1	x	x	x	x	x	x	x	x	x ¹⁰⁾	x ¹⁰⁾
		V5.3	x	x	x	x	x	x	x	x	x ¹⁰⁾	x ¹⁰⁾
	6ES7414-3XM07-0AB0	V7.0	x	x	x	x	x	x	x	x	x	x
CPU 414-3 PN/DP	6ES7414-3EM05-0AB0	V5.0	x	x	– ⁴⁾	– ⁴⁾	x ¹⁾	x	– ⁴⁾	– ⁴⁾	x ¹⁰⁾	x ¹⁰⁾
		V5.1	x	x	x ⁶⁾	x ⁶⁾	x	x	x ⁷⁾	x ⁷⁾	x ¹⁰⁾	x ¹⁰⁾
		V5.2	x	x	x	x	x	x	x	x	x ¹⁰⁾	x ¹⁰⁾
		V5.3	x	x	x	x	x	x	x	x	x ¹⁰⁾	x ¹⁰⁾

V1.7		Industrial Ethernet CP	CP443-1	CP443-1	CP443-1	CP443-1	CP 443-1 Advanced	CP 443-1 Advanced	CP 443-1 Advanced	CP 443-1 Advanced	CP 443-1 RNA ⁷⁾	CP 443-1 UA ⁷⁾
		Order number	6GK7443-1EX10-0XE0	6GK7443-1EX11-0XE0	6GK7443-1EX20-0XE0	6GK7443-1EX30-0XE0	6GK7443-1EX40-0XE0	6GK7443-1EX41-0XE0	6GK7443-1GX20-0XE0	6GK7443-1GX30-0XE0	6GK7443-1RX00-0XE0	6GK7443-1UX00-0XE0
CPU	Order number	from firmware version										
CPU 414-3 PN/DP	6ES7414-3EM06-0AB0	V6.0	x	x	x	x	x	x	x	x	x	x
	6ES7414-3EM07-0AB0	V7.0	x	x	x	x	x	x	x	x	x	x
CPU 414F-3 PN/DP	6ES7414-3FM06-0AB0	V6.0	x	x	x	x	x	x	x	x	x	x
	6ES7414-3FM07-0AB0	V7.0	x	x	x	x	x	x	x	x	x	x
CPU 414-4H	6ES7414-4HJ00-0AB0	V3.1.4	x	x	–	–	–	–	–	–	–	–
	6ES7414-4HJ04-0AB0	V4.0.10	x	x	x ²⁾	–	–	–	x ²⁾	–	–	–
	6ES7414-4HM14-0AB0	V4.5.0	x	x	x ⁶⁾	x ^{8 13)}	–	–	x ⁶⁾	x ^{8 13)}	x ¹¹⁾	–
	6ES7414-4HR14-0AB0	V4.5.0	x	x	x ⁶⁾	x ^{8 13)}	–	–	x ⁶⁾	x ^{8 13)}	x ¹¹⁾	–
CPU 414-5H PN/DP	6ES7414-5HM06-0AB0	V6.0	–	x ¹³⁾	x ⁷⁾	x ⁷⁾	–	–	x ⁷⁾	x ⁷⁾	x	x
CPU 416-1	6ES7416-1XJ01-0AB0	1	x	x	–	–	–	–	–	–	–	–
	6ES7416-1XJ02-0AB0	2	x	x	–	–	–	–	–	–	–	–
CPU 416-2	6ES7416-2XL00-0AB0	3	x	x	–	–	–	–	–	–	–	–
	6ES7416-2XL01-0AB0	1	x	x	–	–	–	–	–	–	–	–
	6ES7416-2XK00-0AB0	3	x	x	–	–	–	–	–	–	–	–
	6ES7416-2XK01-0AB0	1	x	x	–	–	–	–	–	–	–	–
	6ES7416-2XK02-0AB0	1 / V1.1.0	x	x	–	–	–	–	–	–	–	–
	6ES7416-2XK04-0AB0	V4.0	x	x	– ³⁾	– ³⁾	x	x	– ³⁾	– ³⁾	–	–
		V4.1	x	x	x ⁵⁾	x ⁵⁾	x	x	x ⁵⁾	x ⁵⁾	–	–
	6ES7416-2XN05-0AB0	V5.0	x	x	– ⁴⁾	– ⁴⁾	x ¹⁾	x	– ⁴⁾	– ⁴⁾	x ¹⁰⁾	x ¹⁰⁾
		V5.1	x	x	x ⁶⁾	x ⁶⁾	x	x	x ⁷⁾	x ⁷⁾	x ¹⁰⁾	x ¹⁰⁾
		V5.2.1	x	x	x	x	x	x	x	x	x ¹⁰⁾	x ¹⁰⁾
		V5.3	x	x	x	x	x	x	x	x	x ¹⁰⁾	x ¹⁰⁾
	6ES7416-2XP07-0AB0	V7.0	x	x	x	x	x	x	x	x	x	x
CPU 416-2F	6ES7416-2FK02-0AB0	V3.1.4	x	x	–	–	–	–	–	–	–	–
	6ES7416-2FK04-0AB0	V4.0	x	x	– ³⁾	– ³⁾	x	x	– ³⁾	– ³⁾	–	–
		V4.1	x	x	x ⁵⁾	x ⁵⁾	x	x	x ⁵⁾	x ⁵⁾	–	–
	6ES7416-2FN05-0AB0	V5.0	x	x	– ⁴⁾	– ⁴⁾	x ¹⁾	x	– ⁴⁾	– ⁴⁾	x ¹⁰⁾	x ¹⁰⁾
		V5.1	x	x	x ⁶⁾	x ⁶⁾	x	x	x ⁷⁾	x ⁷⁾	x ¹⁰⁾	x ¹⁰⁾
		V5.2.1	x	x	x	x	x	x	x	x	x ¹⁰⁾	x ¹⁰⁾
		V5.3	x	x	x	x	x	x	x	x	x ¹⁰⁾	x ¹⁰⁾
	6ES7416-2FP07-0AB0	V7.0	x	x	x	x	x	x	x	x	x	x
CPU 416-3	6ES7416-3XL00-0AB0	1 / V1.1.0	x	x	–	–	–	–	–	–	–	–
	6ES7416-3XL04-0AB0	V4.0	x	x	– ³⁾	– ³⁾	x	x	– ³⁾	– ³⁾	–	–
		V4.1	x	x	x ⁵⁾	x ⁵⁾	x	x	x ⁵⁾	x ⁵⁾	–	–
	6ES7416-3XR05-0AB0	V5.0	x	x	– ⁴⁾	– ⁴⁾	x ¹⁾	x	– ⁴⁾	– ⁴⁾	x ¹⁰⁾	x ¹⁰⁾
		V5.1	x	x	x ⁶⁾	x ⁶⁾	x	x	x ⁷⁾	x ⁷⁾	x ¹⁰⁾	x ¹⁰⁾
		V5.2.1	x	x	x	x	x	x	x	x	x ¹⁰⁾	x ¹⁰⁾
		V5.3	x	x	x	x	x	x	x	x	x ¹⁰⁾	x ¹⁰⁾
	6ES7416-3XS07-0AB0	V7.0	x	x	x	x	x	x	x	x	x	x
CPU 416-3 PN/DP	6ES7416-3ER05-0AB0	V5.0	x	x	– ⁴⁾	– ⁴⁾	x ¹⁾	x	– ⁴⁾	– ⁴⁾	x ¹⁰⁾	x ¹⁰⁾
		V5.1	x	x	x ⁶⁾	x ⁶⁾	x	x	x ⁷⁾	x ⁷⁾	x ¹⁰⁾	x ¹⁰⁾
		V5.2	x	x	x	x	x	x	x	x	x ¹⁰⁾	x ¹⁰⁾
		V5.3	x	x	x	x	x	x	x	x	x ¹⁰⁾	x ¹⁰⁾
	6ES7416-3ES06-0AB0	V6.0	x	x	x	x	x	x	x	x	x	x
	6ES7416-3ES07-0AB0	V7.0	x	x	x	x	x	x	x	x	x	x
CPU 416-3F PN/DP	6ES7416-3FR05-0AB0	V5.0	x	x	– ⁴⁾	– ⁴⁾	x ¹⁾	x	– ⁴⁾	– ⁴⁾	x ¹⁰⁾	x ¹⁰⁾
		V5.1	x	x	x ⁶⁾	x ⁶⁾	x	x	x ⁷⁾	x ⁷⁾	x ¹⁰⁾	x ¹⁰⁾
		V5.2	x	x	x	x	x	x	x	x	x ¹⁰⁾	x ¹⁰⁾
		V5.3	x	x	x	x	x	x	x	x	x ¹⁰⁾	x ¹⁰⁾

V1.7		Industrial Ethernet CP	CP443-1	CP443-1	CP443-1	CP443-1	CP 443-1 Advanced	CP 443-1 Advanced	CP 443-1 Advanced	CP 443-1 Advanced	CP 443-1 RNA ⁷⁾	CP 443-1 UA ⁷⁾
		Order number	6GK7443-1EX10-0XE0	6GK7443-1EX11-0XE0	6GK7443-1EX20-0XE0	6GK7443-1EX30-0XE0	6GK7443-1EX40-0XE0	6GK7443-1EX41-0XE0	6GK7443-1GX20-0XE0	6GK7443-1GX30-0XE0	6GK7443-1RX00-0XE0	6GK7443-1UX00-0XE0
CPU	Order number	from firmware version										
CPU 416-3F PN/DP	6ES7416-3FS06-0AB0	V6.0	x	x	x	x	x	x	x	x	x	x
	6ES7416-3FS07-0AB0	V7.0	x	x	x	x	x	x	x	x	x	x
CPU 416-5H PN/DP	6ES7416-5HS06-0AB0	V6.0	–	x ¹³⁾	x ⁷⁾	x ⁷⁾	–	–	x ⁷⁾	x ⁷⁾	x	x
CPU 417-4	6ES7417-4XL00-0AB0	1 / V1.1.0	x	x	–	–	–	–	–	–	–	–
	6ES7417-4XL04-0AB0	V4.0	x	x	– ³⁾	– ³⁾	x	x	– ³⁾	– ³⁾	–	–
		V4.1	x	x	x ⁵⁾	x ⁵⁾	x	x	x ⁵⁾	x ⁵⁾	–	–
	6ES7417-4XT05-0AB0	V5.0	x	x	– ⁴⁾	– ⁴⁾	x ¹⁾	x	– ⁴⁾	– ⁴⁾	x ¹⁰⁾	x ¹⁰⁾
		V5.1	x	x	x ⁶⁾	x ⁶⁾	x	x	x ⁷⁾	x ⁷⁾	x ¹⁰⁾	x ¹⁰⁾
		V5.2.1	x	x	x	x	x	x	x	x	x ¹⁰⁾	x ¹⁰⁾
		V5.3	x	x	x	x	x	x	x	x	x ¹⁰⁾	x ¹⁰⁾
	6ES7417-4XT07-0AB0	V7.0	x	x	x	x	x	x	x	x	x	x
CPU 417-4H	6ES7417-4HL00-0AB0	1 / V2.1.0	x	x	–	–	–	–	–	–	–	–
	6ES7417-4HL01-0AB0	1 / V2.1.0	x	x	–	–	–	–	–	–	–	–
	6ES7417-4HL04-0AB0	V4.0.10	x	x	x ²⁾	–	–	–	x ²⁾	–	–	–
	6ES7417-4HT14-0AB0	V4.5.0	x	x	x ⁸⁾	x ⁸⁾¹³⁾	–	–	x ⁸⁾	x ⁸⁾¹³⁾	x ¹¹⁾	–
CPU 417-5H PN/DP	6ES7417-5HT06-0AB0	V6.0	–	x ¹³⁾	x ⁷⁾	x ⁷⁾	–	–	x ⁷⁾	x ⁷⁾	x	x
CPU 410-5H ⁹⁾	6ES7410-5HX08-0AB0	V8.0.x	–	–	–	x ⁷⁾	–	–	–	x ⁷⁾	–	–
		V8.1.x	–	–	–	x ⁷⁾	–	–	–	x ⁷⁾	x	x ¹²⁾
		V8.2	–	–	–	x ⁷⁾	–	–	–	x ⁷⁾	x	x ¹²⁾
CPU 410 SMART ⁹⁾	6ES7410-5HN08-0AB0	V8.1.x	–	–	–	x ⁷⁾	–	–	–	x ⁷⁾	x	x ¹²⁾
		V8.2	–	–	–	x ⁷⁾	–	–	–	x ⁷⁾	x	x ¹²⁾
CPU 410E ⁹⁾	6ES7410-5HM08-0AB0	V8.2	–	–	–	x ⁷⁾	–	–	–	x ⁷⁾	x	x ¹²⁾

¹⁾ On a CPU V5.0 the CP443-1EX40 can only be used for:

- standard communication services
- IT functions
- PROFINET CBA

It's not possible to use the CP as PROFINET IO controller!

The configuration on a CPU V5.0 is possible since STEP 7 V5.4 SP2.

²⁾ The CP can only be used as spare part, i. e. you have to configure the CP as CP443-1EX11 in the hardware configuration.

³⁾ You have to upgrade the firmware of the CPU from V4.0 to V4.1.

⁴⁾ You have to upgrade the firmware of the CPU from V5.0 to V5.1.

⁵⁾ The function PROFINET IO isn't available and the function blocks FC53 "AG_SSEND" and "AG_SRECV" can't be used.

⁶⁾ The following functions are not supported:

- IRT communication with high flexibility
- MRP (Medien Redundancy Protocol)
- prioritized startup

⁷⁾ The following functions are not supported:

- PROFINET IO
- IRT communication with high flexibility
- MRP (Medien Redundancy Protocol)
- prioritized startup

⁸⁾ The following functions are not supported:

- PROFINET IO
- IRT communication with high flexibility
- MRP (Medien Redundancy Protocol)
- prioritized startup
- function blocks FC53 "AG_SSEND" and FC63 "AG_SRECV"
- open TCP/IP communication

⁹⁾ This CPU is only released in PCS 7 environment and can only be project with PCS 7.

¹⁰⁾ You have to upgrade to firmware of the CPU to V5.3.2.

V1.7		Industrial Ethernet CP	CP443-1	CP443-1	CP443-1	CP443-1	CP 443-1 Advanced	CP 443-1 Advanced	CP 443-1 Advanced	CP 443-1 Advanced	CP 443-1 RNA ¹⁾	CP 443-1 UA ¹⁾
		Order number	6GK7443-1EX10-0XE0	6GK7443-1EX11-0XE0	6GK7443-1EX20-0XE0	6GK7443-1EX30-0XE0	6GK7443-1EX40-0XE0	6GK7443-1EX41-0XE0	6GK7443-1GX20-0XE0	6GK7443-1GX30-0XE0	6GK7443-1RX00-0XE0	6GK7443-1UX00-0XE0
CPU	Order number	from firmware version										

¹⁾ You have to upgrade to firmware of the CPU to V4.5.6.

¹²⁾ For CPU 410 / CPU 410 SMART there ist only a release as OPC UA client.

¹³⁾ ISO-on-TCP for H communication isn` t released under PCS 7.

V1.0		PROFIBUS CP	CP443-5 Extended	CP443-5 Extended	CP443-5 Basic
		Article Number	6GK7443-5DX04-0XE0	6GK7443-5DX05-0XE0	6GK7443-5FX02-0XE0
CPU	Article Number	from firmware version			
CPU 412-1	6ES7412-1XF01-0AB0	2	x ¹⁾	x ¹⁾	x ²⁾
	6ES7412-1XF02-0AB0	2	x ¹⁾	x ¹⁾	x ²⁾
	6ES7412-1XF03-0AB0	V3.0	—	—	x
		V3.1	x	x	x
	6ES7412-1XF04-0AB0	V4.0	x	x	x
		V4.1	x	x	x
	6ES7412-1XJ05-0AB0	V5.0	x	x	x
		V5.1	x	x	x
		V5.2.1	x	x	x
		V5.3	x	x	x
	6ES7412-1XJ07-0AB0	V7.0	x	x	x
CPU 412-2	6ES7412-2XG00-0AB0	V3.0	—	—	x
		V3.1	x	x	x
	6ES7412-2XG04-0AB0	V4.0	x	x	x
		V4.1	x	x	x
	6ES7412-2XJ05-0AB0	V5.0	x	x	x
		V5.1	x	x	x
		V5.2.1	x	x	x
		V5.3	x	x	x
	6ES7412-2XK07-0AB0	V7.0	x	x	x
CPU 412-2PN	6ES7412-2EK06-0AB0	V6.0	x	x	x
	6ES7412-2EK07-0AB0	V7.0	x	x	x
CPU 412-3H	6ES7412-3HJ14-0AB0	V4.5.0	x	x	x
CPU 412-5H PN/DP	6ES7412-5HK06-0AB0	V6.0	x	x	x
CPU 413	6ES7413-1XG01-0AB0	2	x ¹⁾	x ¹⁾	x ²⁾
	6ES7413-1XG02-0AB0	1	x ¹⁾	x ¹⁾	x ²⁾
CPU 413-2	6ES7413-2XG01-0AB0	2	x ¹⁾	x ¹⁾	x ²⁾
	6ES7413-2XG02-0AB0	1	x ¹⁾	x ¹⁾	x ²⁾
CPU 414	6ES7414-1XG01-0AB0	2	x ¹⁾	x ¹⁾	x ²⁾
	6ES7414-1XG02-0AB0	2	x ¹⁾	x ¹⁾	x ²⁾
CPU 414-2	6ES7414-2XJ00-0AB0	4	x ¹⁾	x ¹⁾	x ²⁾
	6ES7414-2XJ01-0AB0	2	x ¹⁾	x ¹⁾	x ²⁾
	6ES7414-2XG01-0AB0	2	x ¹⁾	x ¹⁾	x ²⁾
	6ES7414-2XG02-0AB0	2	x ¹⁾	x ¹⁾	x ²⁾
	6ES7414-2XG03-0AB0	V3.0	—	—	x
		V3.1	x	x	x
	6ES7414-2XG04-0AB0	V4.0	x	x	x
		V4.1	x	x	x
	6ES7414-2XK05-0AB0	V5.0	x	x	x
		V5.1	x	x	x
		V5.2.1	x	x	x
		V5.3	x	x	x
	6ES7414-2XL07-0AB0	V7.0	x	x	x
CPU 414-3	6ES7414-3XJ00-0AB0	V3.0	—	—	x
		V3.1	x	x	x
	6ES7414-3XJ04-0AB0	V4.0	x	x	x
		V4.1	x	x	x
	6ES7414-3XM05-0AB0	V5.0	x	x	x
		V5.1	x	x	x
		V5.2.1	x	x	x
		V5.3	x	x	x
	6ES7414-3XM07-0AB0	V7.0	x	x	x
CPU 414-3 PN/DP	6ES7414-3EM05-0AB0	V5.0	x	x	x
		V5.1	x	x	x
		V5.2	x	x	x
		V5.3	x	x	x
CPU 414-3 PN/DP	6ES7414-3EM06-0AB0	V6.0	x	x	x
	6ES7414-3EM07-0AB0	V7.0	x	x	x
CPU 414F-3 PN/DP	6ES7414-3FM06-0AB0	V6.0	x	x	x
	6ES7414-3FM07-0AB0	V7.0	x	x	x

V1.0		PROFIBUS CP	CP443-5 Extended	CP443-5 Extended	CP443-5 Basic
CPU 414-4H	6ES7414-4HJ00-0AB0	V3.0	–	–	x
		V3.1	x	x	x
	6ES7414-4HJ04-0AB0	V4.0.5	x	x	x
	6ES7414-4HM14-0AB0	V4.5.0	x	x	x
	6ES7414-4HR14-0AB0	V4.5.0	x	x	x
CPU 414-5H PN/DP		6ES7414-5HM06-0AB0	V6.0	x	x
CPU 416-1	6ES7416-1XJ01-0AB0	2	x ¹⁾	x ¹⁾	x ²⁾
	6ES7416-1XJ02-0AB0	1	x ¹⁾	x ¹⁾	x ²⁾
CPU 416-2	6ES7416-2XL00-0AB0	4	x ¹⁾	x ¹⁾	x ²⁾
	6ES7416-2XL01-0AB0	1	x ¹⁾	x ¹⁾	x ²⁾
	6ES7416-2XK00-0AB0	4	x ¹⁾	x ¹⁾	x ²⁾
	6ES7416-2XK01-0AB0	1	x ¹⁾	x ¹⁾	x ²⁾
	6ES7416-2XK02-0AB0	V3.0	–	–	x
		V3.1	x	x	x
	6ES7416-2XK04-0AB0	V4.0	x	x	x
		V4.1	x	x	x
	6ES7416-2XN05-0AB0	V5.0	x	x	x
		V5.1	x	x	x
		V5.2.1	x	x	x
		V5.3	x	x	x
	6ES7416-2XP07-0AB0	V7.0	x	x	x
CPU 416-2F	6ES7416-2FK02-0AB0	V3.1	–	–	x
		V4.0	x	x	x
	6ES7416-2FK04-0AB0	V4.0	x	x	x
		V4.1	x	x	x
	6ES7416-2FN05-0AB0	V5.0	x	x	x
		V5.1	x	x	x
		V5.2.1	x	x	x
		V5.3	x	x	x
	6ES7416-2FP07-0AB0	V7.0	x	x	x
CPU 416-3	6ES7416-3XL00-0AB0	V3.0	–	–	x
		V3.1	x	x	x
	6ES7416-3XL04-0AB0	V4.0	x	x	x
		V4.1	x	x	x
	6ES7416-3XR05-0AB0	V5.0	x	x	x
		V5.1	x	x	x
		V5.2.1	x	x	x
		V5.3	x	x	x
	6ES7416-3XS07-0AB0	V7.0	x	x	x
CPU 416-3 PN/DP	6ES7416-3ER05-0AB0	V5.0	x	x	x
		V5.1	x	x	x
		V5.2	x	x	x
		V5.3	x	x	x
	6ES7416-3ES06-0AB0	V6.0	x	x	x
	6ES7416-3ES07-0AB0	V7.0	x	x	x
CPU 416-3F PN/DP	6ES7416-3FR05-0AB0	V5.0	x	x	x
		V5.1	x	x	x
		V5.2	x	x	x
		V5.3	x	x	x
CPU 416-3F PN/DP	6ES7416-3FS06-0AB0	V6.0	x	x	x
	6ES7416-3FS07-0AB0	V7.0	x	x	x
CPU 416-5H PN/DP		6ES7416-5HS06-0AB0	V6.0	x	x
CPU 417-4	6ES7417-4XL00-0AB0	V3.0	–	–	x
		V3.1	x	x	x
	6ES7417-4XL04-0AB0	V4.0	x	x	x
		V4.1	x	x	x
	6ES7417-4XT05-0AB0	V5.0	x	x	x
		V5.1	x	x	x
		V5.2.1	x	x	x
		V5.3	x	x	x
	6ES7417-4XT07-0AB0	V7.0	x	x	x
CPU 417-4H	6ES7417-4HL00-0AB0	V2.1	x	x	x
	6ES7417-4HL01-0AB0	V3.1	x	x	x
	6ES7417-4HL04-0AB0	V4.0.5	x	x	x
	6ES7417-4HT14-0AB0	V4.5.0	x	x	x

V1.0		PROFIBUS CP	CP443-5 Extended	CP443-5 Extended	CP443-5 Basic
CPU 417-5H PN/DP	6ES7417-5HT06-0AB0	V6.0	x	x	x
CPU 410-5H ³⁾	6ES7410-5HX08-0AB0	V8.0.x	x	x	–
		V8.1.x	x	x	–
		V8.2	x	x	–
CPU 410 SMART ³⁾	6ES7410-5HN08-0AB0	V8.1.x	x	x	–
		V8.2	x	x	–
CPU 410E ³⁾	6ES7410-5HM08-0AB0	V8.2	x	x	–

¹⁾ The CPU type doesn't support the following functions in conjunction with the CP:

- DPV1 functionality
- CiR functionality (DP slave, configurable extension)
- Identification of the bus topology by the user program

The maximum number of external DP lines (CP as DP master) per station is 4 instead of 10.

The maximum number of operable CPs per station is 8 instead of 14.

²⁾ The maximum number of operable CPs per station is 8 instead of 14.

³⁾ This CPU is only released in PCS 7 environment and can only be project with PCS 7.