



User Manual

ABC-CPU Systems

Integrated Functions

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1. Integrated Functions

1.1 S5-115U (CPU 941, 942, 943, 944, 945) and ABC X-CPU-2

1.1.1 Function Blocks

Function blocks	Description	S5-115 U			AB C
		CPU 941, 942, 943	CPU 944	CPU 945	CP U 945
FB 238	Compress PLC memory	X	X	X	
FB 239	Delete block	X	X	X	X
FB 240	Code converter B4	X	X		
FB 241	Code converter 16	X	X		
FB 242	Multiplier 16	X	X		
FB 243	Divider 16	X	X		
FB 241	Read analog value from analog input module 463			X	
FB 242	Read analog value from analog input module 464			X	
FB 243	Read analog value from analog input module 466			X	
FB 244	Transmit data	X	X	X	X
FB 245	Receive data	X	X	X	X
FB 246	Fetch data	X	X	X	X
FB 247	Monitor job processing	X	X	X	X
FB 248	Delete job	X	X	X	X
FB 249	Set up interface	X	X	X	X
FB 250	Read analog value from analog input module 460/465			X	X
FB 251	Output analog value			X	X
FB 252	System functions				X

1.1.2 Organization Blocks

		S5-115 U			AB C
Organisation blocks		CPU 941, 942, 943	CPU 944	CPU 945	CP U 945
<i>OB must be programmed by the user and is called by the operating system</i>					
OB 1	Cyclical	X	X	X	X
Interrupt controlled, time interrupt controlled and time controlled program processing					
OB 2	Interrupt A			X	
OB 3	Interrupt B			X	
OB 4	Interrupt C			X	
OB 5	Interrupt D			X	
OB 6	Interrupt triggered by internal timer	X	X	X	X
OB 10..13	Time controlled program processing (Each variable: 1ms...65535ms)			X	X
Startup behaviour handling					
OB 21	Manual power up	X	X	X	X
OB 22	Power restoration	X	X	X	X
System error handling					
OB 26	Cycle time exceeded	X	X	X	X
OB 33	Time interrupt error	X	X	X	X
OB 35	Peripheral data error	X	X	X	X
Handling of programming and device errors					
OB 19	Calling of an unprogrammed block	X	X	X	X
OB 23	Timeout on individual access to the S5 bus(e.g. L PW, L PY, T PW, T PY, LIR, TIR)	X	X	X	X
OB 24	Timeout when updating the process im- age and the communication flags	X	X	X	X
OB 27	Substitution error	X	X	X	X
OB 32	Transfer error	X	X	X	X
OB 34	Battery failure	X	X	X	X

		S5-115 U			AB C
Organisation blocks		CPU 941, 942, 943	CPU 944	CPU 945	CP U 945
<i>OB is already integrated and has to be called by the user</i>					
OB 31	Cycle time triggering	X	X	X	X
OB 125	Generate STEP5 blocks			X	X
OB 160	Programmable time loop	X	X	X	X
OB 182	Copy data area			X	X
OB 183	Duplicate DX			X	X
OB 184	Duplicate DB			X	X
OB 190	Transfer markers bitwise to DB			X	X
OB 191	Transfer data bitwise from DB to mark- ers			X	X

OB 192	Transfer markers wordwise to DB			X	X
OB 193	Transfer data wordwise from DB to markers			X	X
OB 220	Sign extension			X	X
OB 250	Operating system service			X	X
OB 251	PID control algorithm	X	X	X	X
OB 254	Read process image		X	X	X
OB 255	Output process image		X	X	X

		S5-115 U			AB C
Organisation blocks		CPU 941, 942, 943	CPU 944	CPU 945	CP U 945
<i>OB250, operating system services</i>					
1	Activation of OB6			X	X
2..5	New interval for OB10...OB13			X	X
6	Modify entry in BS128.143			X	X
7	Reduction of the PAA transfer			X	
8	Creation of list for all addressable peripheral data bytes			X	
10/11	Generation of a DB/DX without TRAF			X	
12	Renew block address list			X	
13	Read address (byte) from S5 bus			X	X
14	Write address (byte) to S5 bus			X	X
15	Read address (word) from S5 bus			X	X
16	Write address (word) to S5 bus			X	X
17/18	Read byte from page / Write byte to page			X	
19	Set and reset BASP			X	X
20	Read DBA register			X	X
21	Write DBA register			X	X
22	Read DBL register			X	X
23	Write DBL register			X	X
24	Open DX with index			X	X
25	Call FX with index			X	X
26	Remove block from block address list			X	
27	Change block ID to „valid in EPROM“			X	
28	Change block ID to „valid in RAM“			X	

1.2 S5-135/155U (CPU 928, 946/7, 948) and ABC X-CPU-2

1.2.1 Function Blocks

The function blocks FB120-FB127 of ABC-CPU948 are reconfigured after the CPU is reset.

The function blocks FB120-FB127 of Siemens CPUs can be loaded as standard FBs (HTBs).

Function blocks	Description	S5-135/155 U			ABC
		CPU 928	CPU 946/7	CPU 948	CPU 948
FB 120	SEND	X	STEP5	X	X
FB 121	RECEIVE	X	STEP5	X	X
FB 122	FETCH	X	STEP5	X	X
FB 123	CONTROL	X	STEP5	X	X
FB 124	RESET	X	STEP5	X	X
FB 125	SYNCHRON	X	STEP5	X	X
FB 126	SEND-A	X	STEP5	X	X
FB 127	RECV-A	X	STEP5	X	X

1.2.2 Organisation Blocks

Organisation blocks	Description	S5-135/155 U			ABC
		CPU 928	CPU 946/7	CPU 948	CPU 948
OB 110	Access to condition code byte	X			X
OB 111	Reset ACCU 1, 2, 3 and 4	X			X
OB 112	AKKU-Roll-Up	X			X
OB 113	AKKU-Roll-Down	X			X
OB 120	Activate/deactivate „Disable all interrupts“	X			X
OB 121	Activate/deactivate „Disable time interrupts individually“	X	X		
OB 121	Set/read system time			X	X
OB 122	Activate/deactivate „Delay all interrupts“	X	X		X
OB 122	Activate/deactivate „Disable interrupts“			X	X
OB 123	Activate/deactivate „Delay time interrupts individually“	X			X
OB 124	Delete STEP 5 blocks		X	X	X
OB 125	Generate STEP 5 blocks		X	X	X
OB 126	Define/transfer process images		X	X	
OB 129	Determine battery status			X	X
OB 131	Delete ACCU 1, 2, 3 and 4			X	X
OB 132	AKKU-Roll-Up			X	X
OB 133	AKKU-Roll-Down			X	X
OB 141	Activate/deactivate „Disable time interrupts individually“			X	X
OB 142	Activate/deactivate „Delay all interrupts“			X	X
OB 143	Activate/deactivate „Delay time interrupts individually“			X	X
OB 150	Set/read system time	X		X	X
OB 151	Set/read time for clock-controlled time interrupts	X		X	
OB 152	Cycle statistics	X			X
OB 153	Set/read time for delay interrupt	X		X	
OB 160-163	Counter loop	X			X
OB 170	Read block stack (BSTACK)	X			
OB 180	Variable data block access	X			X
OB 181	Test data block (DX/DX)	X		X	X
OB 182	Copy data area	X		X	X
OB 190, 192	Transfer markers to data blocks	X			X
OB 191, 193	Transfer data blocks to marker area	X			X
OB 200, 202, 203, 204, 205	Functions for multi-processor communication	X	X	X	
OB 216 bis 218	Page accesses	X			X
OB 220	Sign extension	X			X
OB 221	Set cycle time monitoring	X			X
OB 222	Restart cycle time monitoring	X		X	X
OB 223	Compare startup modes	X	X	X	
OB 224	Transfer communication flags in blocks	X			
OB 226	Read word from system program	X			
OB 227	Read checksum of system program	X			

OB 228	Read status information of a program processing level	X			
OB 230 bis 237	Functions for standard function block	X		X	X
OB 240	Initialize shift register	X			
OB 241	Process shift register	X			
OB 242	Delete shift register	X			
OB 250	Closed-loop control: Initialize PID algorithm	X			X
OB 251	Closed-loop control: Process PID algorithm	X			X
OB 254, 255	Copy/duplicate a DB or DX data block	X	X	X	X

1.3 S5-150 and ABC X-CPU-2

1.3.1 Function Blocks

The function blocks FB120-FB126 (AS512) and FB180-FB185(HTB) of the ABC-CPU948/150 are reconfigured when the CPU is reset.

Function blocks	Description	S5-150	ABC
		CPUx	CPU 948/150
FB 120	SST:VOA	STEP5	X
FB 121	SST:VOK	STEP5	X
FB 122	SST:VOW	STEP5	X
FB 123	SST:VOE	STEP5	X
FB 125	SST:WERK	STEP5	X
FB 126	SST:WAUS	STEP5	X
FB 180	SEND	STEP5	X
FB181	RECEIVE	STEP5	X
FB182	FETCH	STEP5	X
FB183	RESET	STEP5	X
FB184	CONTROL	STEP5	X
FB185	SYNCHRON	STEP5	X

1.3.2 Organisation Blocks

Organisation blocks	Description	S5-150	ABC
		CPUx	CPU 948/150
OB 110	Access to condition code byte		X
OB 111	Delete ACCU 1, 2, 3 and 4		X
OB 112	ACCU Roll-up		X
OB 113	ACCU Roll-Down		X
OB 120	Activate/deactivate „Disable all interrupts“		X
OB 121	Set/read system time		X
OB 122	Activate/deactivate „Delay all interrupts“		X
OB 122	Activate/deactivate „Disable interrupts“		X
OB 123	Activate/deactivate „Delay time interrupts individually“		X
OB 124	Delete STEP 5 blocks		X
OB 125	Generate STEP 5 blocks		X
OB 126	Define/transfer process images		
OB 129	Determine battery status		X
OB 131	Delete ACCU 1, 2, 3 and 4		X
OB 132	ACCU Roll-Up		X
OB 133	ACCU Roll-Down		X
OB 141	Activate/deactivate „Disable time interrupts individually“		X
OB 142	Activate/deactivate „Delay all interrupts“		X
OB 143	Activate/deactivate „Delay time interrupts individually“		X
OB 150	Set/area system time		X
OB 151	Set/area time for clock-controlled time interrupt		
OB 152	Cycle statistics		X
OB 153	Set/read time for delay interrupt		
OB 160-163	Counter loop		X
OB 170	Read block stack (BSTACK)		
OB 180	Variable data block access		X
OB 181	Test data block (DX/DX)		X
OB 182	Copy data area		X
OB 190, 192	Transfer markers to data blocks		X
OB 191, 193	Transfer data blocks to marker area		X
OB 200, 202, 203, 204, 205	Functions for multi-processor communication		
OB 216 bis 218	Page accesses		X
OB 220	Sign extension		X
OB 221	Set cycle time monitoring		X
OB 222	Restart cycle time monitoring		X
OB 223	Compare startup modes		
OB 224	Transfer communication flags in blocks		
OB 226	Read word from sytem program		
OB 227	Read checksum of system program		
OB 228	Read status information of a program processing level		

OB 230 bis 237	Functions for standard function block		X
OB 240	Initialize shift register		
OB 241	Process shift register		
OB 242	Delete shift register		
OB 250	Closed-loop control: Initialize PID algorithm		X
OB 251	Closed-loop control: Process PID algorithm		X
OB 254, 255	Copy/duplicate a DB or DX data block		X

1.4 S7-400 (CPU 416) and ABC X-CPU-2

1.4.1 Organization Blocks

Organisation blocks	Description	S7-400	ABC
		CPU 416	X7
OB 1	Cyclical program processing	X	X
OB 10..17	Time interrupts	X	X
OB 20..23	Delay interrupts	X	
OB 30..38	Time interrupts	X	X
OB 40..47	Process interrupts	X	X
OB 60	Multi-computing interrupt	X	
OB 80..87	Asynchronous error interrupts	X	X
OB 90	Background	X	X
OB 100	Manual Restart	X	X
OB 101	Restart	X	X
OB 102	Cold start	X	X
OB 121,122	Synchronous error interrupts	X	X

1.4.2 System Functions

System functions	Description	S7-400	ABC
		CPU 416	X7
SFC 0	SET_CLK	X	X
SFC 1	READ_CLK	X	X
SFC 2	SET_RTM	X	X
SFC 3	CTRL_RTM	X	X
SFC 4	READ_RTM	X	X
SFC 5	GADR_LGC	X	X ¹⁾
SFC 6	RD_SINFO	X	X
SFC 7	DP_PRAL	X	
SFC 9	EN_MSG	X	
SFC 10	DIS_MSG	X	
SFC 11	SYC_FR	X	
SFC 12	D_ACT_DP	X	X ¹⁾
SFC 13	DP_NRMDG	X	X ¹⁾
SFC 14	DPRD_DAT	X	X
SFC 15	DPWR_DAT	X	X
SFC 17	ALARM_SQ	X	X
SFC 18	ALARM_S	X	X
SFC 19	ALARM_SC	X	X
SFC 20	BLKMOV	X	X
SFC 21	FILL	X	X
SFC 22	CREAT_DB	X	X
SFC 23	DEL_DB	X	X
SFC 24	TEST_DB	X	X

SFC 25	COMPRESS	X	X
SFC 26	UPDAT_PI	X	X
SFC 27	UPDAT_PO	X	X
SFC 28	SET_TINT	X	X
SFC 29	CAN_TINT	X	X
SFC 30	ACT_TINT	X	X
SFC 31	QRY_TINT	X	X
SFC 32	SRT_DINT	X	
SFC 33	CAN_DINT	X	
SFC 34	QRY_DINT	X	
SFC 35	MP_ALARM	X	
SFC 36	MSK_FLT	X	X
SFC 37	DMSK_FLT	X	X
SFC 38	READ_ERR	X	X
SFC 39	DIS_IRT	X	X
SFC 40	EN_IRT	X	X
SFC 41	DIS_AIRT	X	X
SFC 42	EN_AIRT	X	X
SFC 43	RE_TRIGR	X	X
SFC 44	REPL_VAL	X	
SFC 46	STP	X	X
SFC 47	WAIT	X	X
SFC 48	SNC_RTCB	X	
SFC 49	LGC_GADR	X	X ¹⁾
SFC 50	RD_LGADR	X	X ¹⁾
SFC 51	RDSYSST	X	X ²⁾
SFC 52	WR-USMSG	X	X ¹⁾
SFC 54	RD_DPARAM	X	
SFC 55	WR-PARM	X	
SFC 56	WR_DPARAM	X	
SFC 57	PARM_MOD	X	
SFC 58	WR_REC	X	X ¹⁾
SFC 59	RD_REC	X	X ¹⁾
SFC 60	GD_SND	X	
SFC 61	GD_RCV	X	
SFC 62	CONTROL	X	
SFC 64	TIME_TCK	X	X
SFC 65	X_SEND	X	
SFC 66	X_RCV	X	
SFC 67	X_GET	X	
SFC 68	X_PUT	X	
SFC 69	X_ABORT	X	
SFC 72	I_GET	X	X
SFC 73	I_PUT	X	X
SFC 74	I_ABORT	X	X
SFC 79	SET	X	X
SFC 80	RSET	X	X
SFC 81	UBLKMOV	X	X
SFC 87	C_DIAG	X	X ¹⁾
SFC 100	SET_CLKS	X	

SFC 103	DP_TOPOL	X	
SFC 104	CIR	X	
SFC 105	READ_SI	X	
SFC 106	DEL_SI	X	
SFC 107	ALARM_DQ	X	X
SFC 108	ALARM_D	X	X
SFC 126	SYNC_PI	X	
SFC 127	SYNC_PO	X	
SFC 200	KG2REAL		X
SFC 201	REAL2KG		X
SFC 202	BLKSWAP		X
SFC 244	SR		X
SFC 246	RW		X
SFC 247	CONTROL		X
SFC 248	RESET		X
SFC 249	SYNCHRON		X
SFC 252	XCODE		X
SFC 254	RW_SBUS		X

- 1) Integrated in the CPU, but not full implemented. The Function blocks returned with negative results.
- 2) With SZL 17, 18, 19, 20, 21, 25, 34, 36, 50, 113, 144, 145, 146, 148, 160

1.4.3 System Function Blocks

System function blocks	Description	S7-400	ABC
		CPU 416	X7
SFB 0	CTU	X	X
SFB 1	CTD	X	X
SFB 2	CTUD	X	X
SFB 3	TP	X	X
SFB 4	TON	X	X
SFB 5	TOF	X	X
SFB 8	USEND	X	X
SFB 9	URCV	X	X
SFB 12	BSEND	X	X
SFB 13	BRCV	X	X
SFB 14	GET	X	X
SFB 15	PUT	X	X
SFB 16	PRINT	X	X
SFB 19	START	X	X ¹⁾
SFB 20	STOP	X	X ¹⁾
SFB 21	RESUME	X	X ¹⁾
SFB 22	STATUS	X	X ¹⁾
SFB 23	USTATUS	X	
SFB 31	NOTIFY8P	X	X
SFB 32	DRUM	X	X ¹⁾
SFB 33	ALARM	X	X
SFB 34	ALARM_8	X	X
SFB 35	ALARM_8P	X	X
SFB 36	NOTIFY	X	X
SFB 37	AR_SEND	X	
SFB 52	RDREC	X	X
SFB 53	WRREC	X	X
SFB 54	RALRM	X	X ¹⁾

- ¹⁾ Integrated in the CPU, but not full implemented. The Function blocks returned with negative results.

1.4.4 HW Konfig

		S7-400	ABC
Properties	Description	CPU 416	X7
General	- Name - System identification	X	X
Start-up	- Start-up after network on	X	X
Cycle / tact markers	- Update OB1 process image cycli- cally - Cycle monitoring time - Minimum cycle time - Size of the process image of the inputs (S5:128) - Size of the process image of the outputs (S5:128) - Timing flags	X	X
Remanence	- Number of flag bytes as of MB 0 - Number of S7 timers as of T0 - Number of S7 timers as of T0	X	X
Memory	- Local data (priority classes)	X	X (16K Bytes per class)
	- Communication resources	X	X
Interrupts	- Process alarms	X	X (without sub- process im- age)
	- Asynchronous error alarms	X	X (without sub- process im- age)
Time alarms		X	X (without sub- process im- age)
Wake up interrupts		X	X (without sub- process im- age)
Diagnosis / Clock	- Number of messages in diagnosis buffer	X	X
Protection	- Protection level	X	X

		S7-400	ABC
Properties	Description	CP 443-1	X7
General	- Interface	X	X (No ISO pro- tocol)
Options	- Module exchange without PG	X	X (absolutely necessary)
Time synchronization	- NTP Procedure	X	X

1.4.5 S7 Standard Library (stdlib30)

1.4.5.1 Communication Blocks

System functions	Description		S7-400	ABC
			CPU 416	X7
	Family	Name		
FB 63	COMM	TSEND	X ¹⁾	X
FB 64	COMM	TRCV	X ¹⁾	X
FB 65	COMM	TCON	X ¹⁾	X
FB 66	COMM	TDISCON	X ¹⁾	X
FB 67	COMM	TUSEND	X ¹⁾	X
FB 68	COMM	TURCV	X ¹⁾	X

¹⁾ Not to be used in all S7-400 CPU.

1.4.5.2 S5-S7 Converting Blocks

System functions	Description		S7-400	ABC
			CPU 416	X7
	Family	Name		
FC 61	S5_CNVRT	GP_FPGP	X	X
FC 62	S5_CNVRT	GP_GPFP	X	X
FC 63	S5_CNVRT	GP_ADD	X	X
FC 64	S5_CNVRT	GP_SUB	X	X
FC 65	S5_CNVRT	GP_MUL	X	X
FC 66	S5_CNVRT	GP_DIV	X	X
FC 67	S5_CNVRT	GP_VGL	X	X
FC 68	S5_CNVRT	RAD_GP	X	X
FC 69	S5_CNVRT	MLD_TG	X	X
FC 70	S5_CNVRT	MELD_TGZ	X	X
FC 71	S5_CNVRT	MLD_EZW	X	X
FC 72	S5_CNVRT	MLD_EDW	X	X
FC 73	S5_CNVRT	MLD_SAMW	X	X
FC 74	S5_CNVRT	MLD_SAM	X	X
FC 75	S5_CNVRT	MLD_EZ	X	X
FC 76	S5_CNVRT	MLD_ED	X	X
FC 77	S5_CNVRT	MLD_EZWK	X	X
FC 78	S5_CNVRT	MLD_EDWK	X	X
FC 79	S5_CNVRT	MLD_EZK	X	X
FC 80	S5_CNVRT	MLD_EDK	X	X
FC 81	S5_CNVRT	COD_B4	X	X
FC 82	S5_CNVRT	COD_16	X	X
FC 83	S5_CNVRT	MUL_16	X	X
FC 84	S5_CNVRT	DIV_16	X	X
FC 85	S5_CNVRT	ADD_32	X	X
FC 86	S5_CNVRT	SUB_32	X	X

FC 87	S5_CNVRT	MUL_32	X	X
FC 88	S5_CNVRT	DIV_32	X	X
FC 89	S5_CNVRT	RAD_16	X	X
FC 90	S5_CNVRT	REG_SCHB	X	X
FC 91	S5_CNVRT	REG_SCHW	X	X
FC 92	S5_CNVRT	REG_FIFO	X	X
FC 93	S5_CNVRT	REG_LIFO	X	X
FC 94	S5_CNVRT	DB_COPY1	X	X
FC 95	S5_CNVRT	DB_COPY2	X	X
FC 96	S5_CNVRT	RETTEN	X	X
FC 97	S5_CNVRT	LADEN	X	X
FC 98	S5_CNVRT	COD_B8	X	X
FC 99	S5_CNVRT	COD_32	X	X
FC 100	S5_CNVRT	AE_460_1	X	X
FC 101	S5_CNVRT	AE_460_2	X	X
FC 102	S5_CNVRT	AE_463_1	X	X
FC 103	S5_CNVRT	AE_463_2	X	X
FC 104	S5_CNVRT	AE_464_1	X	X
FC 105	S5_CNVRT	AE_464_2	X	X
FC 106	S5_CNVRT	AE_466_1	X	X
FC 107	S5_CNVRT	AE_466_2	X	X
FC 108	S5_CNVRT	RLG_AA1	X	X
FC 109	S5_CNVRT	RLG_AA2	X	X
FC 110	S5_CNVRT	PER_ET1	X	X
FC 111	S5_CNVRT	PER_ET2	X	X
FC 112	S5_CNVRT	SINUS	X	X
FC 113	S5_CNVRT	COSINUS	X	X
FC 114	S5_CNVRT	TANGENS	X	X
FC 115	S5_CNVRT	COTANG	X	X
FC 116	S5_CNVRT	ARCSIN	X	X
FC 117	S5_CNVRT	ARCCOS	X	X
FC 118	S5_CNVRT	ARCTAN	X	X
FC 119	S5_CNVRT	ARCCOT	X	X
FC 120	S5_CNVRT	LN_X	X	X
FC 121	S5_CNVRT	LG_X	X	X
FC 122	S5_CNVRT	B_LOG_X	X	X
FC 123	S5_CNVRT	E_H_N	X	X
FC 124	S5_CNVRT	ZEHN_H_N	X	X
FC 125	S5_CNVRT	A2_H_A1	X	X

1.4.5.3 IEC Function Blocks

			S7-400	ABC
System functions	Description		CPU 416	X7
	Family	Name		
FC 1	IEC	AD_DT_TM	X	X
FC 2	IEC	CONCAT	X	X
FC 3	IEC	D_TOD_DT	X	X
FC 4	IEC	DELETE	X	X

FC 5	IEC	DI_STRNG	X	X
FC 6	IEC	DT_DATE	X	X
FC 7	IEC	DT_DAY	X	X
FC 8	IEC	DT_TOD	X	X
FC 9	IEC	EQ_DT	X	X
FC 10	IEC	EQ_STRNG	X	X
FC 11	IEC	FIND	X	X
FC 12	IEC	GE_DT	X	X
FC 13	IEC	GE_STRNG	X	X
FC 14	IEC	GT_DT	X	X
FC 15	IEC	GT_STRNG	X	X
FC 16	IEC	I_STRNG	X	X
FC 17	IEC	INSERT	X	X
FC 18	IEC	I LE_DT	X	X
FC 19	IEC	LE_STRNG	X	X
FC 20	IEC	LEFT	X	X
FC 21	IEC	LEN	X	X
FC 22	IEC	LIMIT	X	X
FC 23	IEC	LT_DT	X	X
FC 24	IEC	LT_STRNG	X	X
FC 25	IEC	MAX	X	X
FC 26	IEC	MID	X	X
FC 27	IEC	MIN	X	X
FC 28	IEC	NE_DT	X	X
FC 29	IEC	NE_STRNG	X	X
FC 30	IEC	R_STRNG	X	X
FC 31	IEC	REPLACE	X	X
FC 32	IEC	RIGHT	X	X
FC 33	IEC	S5TI_TIM	X	X
FC 34	IEC	SB_DT_DT	X	X
FC 35	IEC	SB_DT_TM	X	X
FC 36	IEC	SEL	X	X
FC 37	IEC	STRNG_DI	X	X
FC 38	IEC	STRNG_I	X	X
FC 39	IEC	STRNG_R	X	X
FC 40	IEC	TIM_S5TI	X	X

1.5 ABC X-CPU-2 in mixed mode (CPU416/945, CPU416/948)

1.5.1 Conventions

Functions	Description
UC FC 40000..40255	Calls S5 block OB 0..255
UC FC 41000..41255	Calls S5 block PB 0..255
UC FC 42000..42255	Calls S5 block SB 0..255
UC FC 43000..43255	Calls S5 block FB 0..255 (FB must not contain any parameters)
UC FC 44000..44255	Calls S5 block FX 0..255 (FX must not contain any parameters)

Data blocks	Description
AUF DB 40000..40255	Opens S5 block DB 0..255
AUF DB 41000..41255	Opens S5 block DX 0..255

Markers	Description
e.g.: L MB 40000..40255	<p>The following operations can directly access the S5 marker area:</p> <ul style="list-style-type: none"> - Flank operations - Loading/Transfer operations - Saving operations - Linking operations <p>MB 0...255, M0.0...M255.7</p>

S-Markers	Description
e.g.: T MB 41000..45095	<p>The following operations can directly access the S5 marker area:</p> <ul style="list-style-type: none"> - Flank operations - Loading/Transfer operations - Saving operations - Linking operations <p>SY 0..4095, S0.0..S4095.7</p>

Timer	Description
e.g.: SV T 40000..40255	<p>The following operations can directly access the S5 timer area:</p> <ul style="list-style-type: none"> - Time operations <p>T 0..255</p>

Counters	Description
e.g.: S Z 40000..40255	<p>The following operations can directly access the S5 counter area:</p> <ul style="list-style-type: none"> - Counting operations <p>T 0..255</p>