

# Embedded/PC-based Automation

## PC-based Control

### SIMATIC WinAC RTX

#### Overview



- SIMATIC WINAC RTX: Optimized for applications that require a high degree of flexibility and integration capability.
- The software solution for tasks that require hard deterministic behavior and high performance.
- With real-time expansion for assuring deterministic behavior for the control section.

New with WinAC RTX 2009:

- Hardware support for the new Embedded PC platforms SIMATIC IPC427C and SIMATIC HMI IPC477C for PROFINET and retentivity

#### Technical specifications

6ES7 671-0RC07-0YA0	
<b>Product type designation</b>	SIMATIC WinAC RTX 2009
<b>Product version</b>	
Hardware product version	-
Firmware version	4.5
associated programming package	STEP7 V5.4 SP4 or higher + HW update / iMap V3.0 SP1
<b>Memory</b>	
Work memory	
• integrated (for program)	4 Mbyte; Adjustable; depends on Non Paged Memory Pool
• integrated (for data)	4 Mbyte; Adjustable; depends on Non Paged Memory Pool
Load memory	
• integrated RAM, max.	Adjustable; depends on Non Paged Memory Pool
<b>CPU/ blocks</b>	
DB	
• Number, max.	65 535; Limited only by RAM set for data
• Size, max.	64 Kibyte
FB	
• Number, max.	65 536; Limited only by RAM set for code
• Size, max.	64 Kibyte

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<b>Product type designation</b>	SIMATIC WinAC RTX 2009
FC	
• Number, max.	65 536; Limited only by RAM set for code
• Size, max.	64 Kibyte
OB	
• Number, max.	Limited only by RAM set for code
• Size, max.	64 Kibyte
• Number of free cycle OBs	1; OB 1
• Number of time alarm OBs	1; OB 10
• Number of delay alarm OBs	1; OB 20
• Number of watchdog interrupts	9; OB 30-38
• Number of process alarm OBs	1; OB 40
• Number of ODK OBs	3; OB 52-54
• Number of DPV1 alarm OBs	3; OB 55-57
• Number of isochronous mode OBs	2; OB 61-62
• Number of startup OBs	2; OB 100, 102
• Number of asynchronous error OBs	7; OB 80, 82-85, 86, 88
• Number of synchronous error OBs	2; OB 121, 122
Nesting depth	
• per priority class	24
• additional within an error OB	24
<b>CPU/ processing times</b>	
for bit operations, min.	0.004 µs; typ.
for fixed point arithmetic, min.	0.003 µs; typ.
for floating point arithmetic, min.	0.004 µs; typ.
Reference platform	Pentium IV, 2.4 GHz
<b>Times/counters and their retentivity</b>	
S7 counter	
• Number	2 048
• Retentivity	Yes
- can be set	0
- lower limit	2 047
- upper limit	8
- preset	
• Counting range	Yes
- can be set	0
- lower limit	999
- upper limit	
IEC counter	
• present	Yes
• Type	SFB
S7 times	
• Number	2 048
• Retentivity	Yes
- can be set	0
- lower limit	2 047
- upper limit	0
- preset	
• Time range	10 ms
- lower limit	9 990 s
- upper limit	

### Technical specifications (continued)

6ES7 671-0RC07-0YA0	
<b>Product type designation</b>	SIMATIC WinAC RTX 2009
IEC timer	
• present	Yes
• Type	SFB
<b>Data areas and their retentivity</b>	
Retentivity without UPS and PS Extension Board	128 KB with SIMATIC IPC427C and HMI IPC477C; further SIMATIC PCs on request
Retentivity with UPS	all data
Flag	
• Number, max.	16 Kibyte
• of which retentive	MB 0 to MB 16383
• Retentivity preset	MB 0 to MB 15
• Number of clock memories	8
Local data	
• adjustable, max.	32 Kibyte
• preset	16 Kibyte
• per priority class, max.	32 Kibyte
<b>Address area</b>	
I/O address area	
• overall	16 Kibyte
• Outputs	16 Kibyte
• of which, distributed	
- DP interface, inputs	16 Kibyte
- DP interface, outputs	16 Kibyte
- PN interface, inputs	16 Kibyte
- PN interface, outputs	16 Kibyte
Process image	
• Inputs, adjustable	8 Kibyte
• Outputs, adjustable	8 Kibyte
• Inputs, default	512 byte
• Outputs, default	512 byte
Subprocess images	
• Number of subprocess images, max.	15
Digital channels	
• Inputs	128 000
• Outputs	128 000
Analog channels	
• Inputs	8 000
• Outputs	8 000
<b>Hardware configuration</b>	
Submodules	
• Number of submodules, max	4
• of which PROFIBUS, max.	4; Supported interfaces: see 1st and 2nd interface
• of which Industrial Ethernet, max.	1; Supported interfaces: see 3rd and 4th interface
Number of operable FMs and CPs (recommended)	
• FM	FM distributed: FM 350-1 / 350-2, FM 351, FM 352, FM 353, FM 355 / 355-2
• CP, point-to-point	2; CP 340, CP 341 distributed

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<b>Product type designation</b>	SIMATIC WinAC RTX 2009
Number of operable FMs and CPs (recommended)	
• CP, LAN	Over PC CP
<b>Time of day</b>	
Clock	
• Hardware clock (real-time clock)	Yes
• battery-backed and synchronizable	Yes
Runtime meter	
• Number	8
Clock synchronization	
• supported	Yes
• to PC-CP, slave	Yes
• on Ethernet via NTP	Yes
<b>S7 message functions</b>	
Number of login stations for message functions, max.	62
SCAN procedure	No
Process diagnostic messages	Yes; ALARM_S, ALARM_SQ, ALARM_D, ALARM_DQ
simultaneously active Alarm-S blocks, max.	20; of a total of 20 for all SFCs
Alarm 8-blocks	Yes
• Number of instances for alarm 8 and S7 communication blocks, max.	600
Process control messages	No
<b>Test commissioning functions</b>	
Status/control	
• Status/control variable	Yes
Forcing	
• Forcing	No
Status block	Yes
Single step	Yes
Diagnostic buffer	
• present	Yes
• Number of entries, max. preset	3 200 120
<b>Communication functions</b>	
PG/OP communication	Yes
Data record routing	No
Global data communication	
• supported	No
S7 basic communication	
• supported	No
S7 communication	
• supported	Yes
• as server	Yes
• as client	Yes
• User data per job, max.	64 Kibyte; Depends on which block is used: BSEND/USEND or PUT/GET

# Embedded/PC-based Automation

## PC-based Control

### SIMATIC WinAC RTX

#### Technical specifications (continued)

6ES7 671-0RC07-0YA0	
<b>Product type designation</b>	SIMATIC WinAC RTX 2009
Web server	
• Web server	No
Open IE communication	
• TCP/IP	Yes
- Number of connections, max.	Dependent on interface
- Data length, max.	65 534 byte
• ISO-on-TCP (RFC1006)	No
• UDP	Yes
- Number of connections, max.	Dependent on interface
- Data length, max.	1 472 byte
Number of connections	
• overall	64
• usable for PG communication	
- reserved for PG communication	1
• usable for OP communication	
- reserved for OP communication	1
PROFINET CBA (at set setpoint communication load)	
• Setpoint for the CPU communication load	20 %
• Number of remote interconnection partners	64
• Number of functions, master/slave	30
• Total of all Master/Slave connections	1 000
• Data length of all incoming connections master/slave, max.	6 800 byte
• Data length of all outgoing connections master/slave, max.	6 800 byte
• Number of device-internal and PROFIBUS interconnections	500
• Data length of device-internal and PROFIBUS interconnections, max.	4 000 byte
• Data length per connection, max.	1 400 byte
• Remote interconnections with acyclic transmission	
- Sampling frequency: Sampling time, min.	500 ms
- Number of incoming interconnections	100
- Number of outgoing interconnections	100
- Data length of all incoming interconnections, max.	2 000 byte
- Data length of all outgoing interconnections, max.	2 000 byte
- Data length per connection, max.	1 400 byte
• Remote interconnections with cyclic transmission	
- Transmission frequency: Transmission interval, min.	10 ms
- Number of incoming interconnections	200
- Number of outgoing interconnections	200

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<b>Product type designation</b>	SIMATIC WinAC RTX 2009
PROFINET CBA (at set setpoint communication load)	
• Remote interconnections with cyclic transmission	
- Data length of all incoming interconnections, max.	4 800 byte
- Data length of all outgoing interconnections, max.	4 800 byte
- Data length per connection, max.	250 byte
• HMI variables via PROFINET (acyclic)	
- Number of stations that can log on for HMI variables (PN OPC/iMap)	3
- HMI variable updating	500 ms
- Number of HMI variables	200
- Data length of all HMI variables, max.	2 000 byte
• PROFIBUS proxy functionality	
- supported	Yes
- Number of linked PROFIBUS devices	16
- Data length per connection, max.	240 byte; Slave-dependent
<b>1st interface</b>	
Type of interface	CP 5611-A2, CP 5621, integrated PB interface of the SIMATIC PC
Max. no. of simultaneously operable CPs	1
Physics	RS 485 / PROFIBUS
Isolated	Yes
Power supply to interface (15 to 30 V DC), max.	does not exist
Functionality	
• MPI	No
• DP master	Yes
• DP slave	No
DP master	
• Number of connections, max.	8
• Services	
- PG/OP communication	Yes
- Routing	Yes
- Global data communication	No
- S7 basic communication	No
- S7 communication	Yes
- Equidistance mode support	Yes; Only in conjunction with isochronous mode
- Isochronous mode	Yes
- SYNC/FREEZE	Yes
- Activation/deactivation of DP slaves	Yes
- Direct data exchange (slave-to-slave communication)	Yes
- DPV0	Yes
- DPV1	Yes
• Transmission speeds, max.	12 Mbit/s
• Number of DP slaves, max.	64

### Technical specifications (continued)

6ES7 671-0RC07-0YA0	
<b>Product type designation</b>	SIMATIC WinAC RTX 2009
DP master	
• Address area	
- Inputs, max.	16 Kibyte
- Outputs, max.	16 Kibyte
• User data per DP slave	
- Inputs, max.	244 byte
- Outputs, max.	244 byte
<b>2nd interface</b>	
Type of interface	CP 5613, CP 5613-A2, CP 5603
Max. no. of simultaneously operable CPs	4
Physics	RS 485 / PROFIBUS
Isolated	Yes
Functionality	
• MPI	No
• DP master	Yes
• DP slave	No
DP master	
• Number of connections, max.	50
• Services	
- PG/OP communication	Yes
- Routing	Yes
- Global data communication	No
- S7 basic communication	No
- S7 communication	Yes
- Equidistance mode support	Yes; Only in conjunction with isochronous mode
- Isochronous mode	Yes
- SYNC/FREEZE	Yes
- Activation/deactivation of DP slaves	Yes
- Direct data exchange (slave-to-slave communication)	Yes
- DPV0	Yes
- DPV1	Yes
• Transmission speeds, max.	12 Mbit/s
• Number of DP slaves, max.	125
• Address area	
- Inputs, max.	16 Kibyte
- Outputs, max.	16 Kibyte
• User data per DP slave	
- Inputs, max.	244 byte
- Outputs, max.	244 byte
<b>3rd interface</b>	
Type of interface	PROFINET
Max. no. of simultaneously operable CPs	1; Intel Pro/1000 (Intel 82571EB, 82573L, 82574L, 82541PI; non shared IRQ required); integrated IE interface SIMATIC PC 4x7B, 6x7B, 8x7B and IPC4x7C
Physics	Ethernet
Isolated	Yes
automatic detection of transmission speed	Yes; 10/100 Mbit/s

6ES7 671-0RC07-0YA0	
<b>Product type designation</b>	SIMATIC WinAC RTX 2009
Functionality	
• PROFINET IO Controller	Yes
• PROFINET IO Device	No
• PROFINET CBA	Yes
• Open IE communication	Yes
• Web server	No
PROFINET IO Controller	
• Services	
- PG/OP communication	Yes
- Routing	Yes; S7 routing
- S7 communication	Yes
- Open IE communication	Yes
• Transmission speeds, min.	100 Mbit/s
• Transmission rate, max.	100 Mbit/s
• Total number of connectable IO Devices, max.	128
• IRT, supported	No
• Prioritized startup supported	Yes
- Number of IO Devices, max.	32
• Activation/deactivation of IO Devices	Yes
- Number of IO Devices that can be simultaneously activated/deactivated, max.	8
• IO Devices changing during operation (partner ports), supported	Yes
• Device replacement without swap medium	Yes
• Send clock times	1 ms
• Updating time	1 - 512 ms (minimum value depends on communication share set for PROFINET I/O, on the number of I/O devices, and on the volume of configured user data)
• Address area	
- Inputs, max.	16 Kibyte
- Outputs, max.	16 Kibyte
• User data per address area, max.	2 kbyte
- User data consistency, max.	256 byte
SIMATIC communication	
• PG/OP communication	Yes
• S7 routing	Yes
• S7 communication	Yes
• Number of connections, max.	16
Open IE communication	
• Open IE communication, supported	Yes
• Number of connections, max.	32
• Local port numbers used at the system end	0, 20, 21, 23, 25, 80, 102, 135, 161, 8 080, 34 962, 34 963, 34 964, 65 532, 65 533, 65 534, 65 535

# Embedded/PC-based Automation

## PC-based Control

### SIMATIC WinAC RTX

#### Technical specifications (continued)

6ES7 671-0RC07-0YA0	
<b>Product type designation</b>	SIMATIC WinAC RTX 2009
<b>4th interface</b>	
Type of interface	PROFINET
Max. no. of simultaneously operable CPs	CP 1616 (HW release 8 or above), CP 1604 (HW release 7 or higher), integrated PN interface of SIMATIC PC and S7-mEC
Physics	Ethernet
Isolated	Yes
automatic detection of transmission speed	Yes; 10/100 Mbit/s
<b>Functionality</b>	
• PROFINET IO Controller	Yes
• PROFINET CBA	Yes
• Open IE communication	Yes
• Web server	No
<b>PROFINET IO Controller</b>	
• Services	
- PG/OP communication	Yes
- Routing	Yes; S7 routing
- S7 communication	Yes
- Open IE communication	Yes
• Transmission rate, min.	100 Mbit/s
• Transmission rate, max.	100 Mbit/s
• Total number of connectable IO Devices, max.	256
• Number of IO Devices with IRT and the option "high flexibility", max.	64
- of which in line, max.	32
• IRT, supported	Yes
• Prioritized startup supported	Yes
- Number of IO Devices, max.	32
• Activation/deactivation of IO Devices	Yes
- Number of IO Devices that can be simultaneously activated/deactivated, max.	8
• IO Devices changing during operation (partner ports), supported	Yes
• Device replacement without swap medium	Yes
• Send clock times	250 µs, 500 µs, 1 ms
• Updating time	0.25...512 depending on the send cycle
• Address area	
- Inputs, max.	16 Kibyte
- Outputs, max.	16 Kibyte
• User data per address area, max.	2 kbyte
- User data consistency, max.	256 byte

6ES7 671-0RC07-0YA0	
<b>Product type designation</b>	SIMATIC WinAC RTX 2009
SIMATIC communication	
• PG/OP communication	Yes
• S7 routing	Yes
• S7 communication	Yes
• Number of connections, max.	32
Open IE communication	
• Open IE communication, supported	Yes
• Number of connections, max.	32
• Local port numbers used at the system end	0, 20, 21, 25, 80, 102, 135, 161, 34 962, 34 963, 34 964, 65 532, 65 533, 65 534, 65 535
<b>Isochronous mode</b>	
Isochronous mode	Yes; only PROFIBUS
Number of DP masters with isochronous mode	2
User data per isochronous slave, max.	128 byte
equidistance	Yes
shortest clock pulse	2.2 ms; 2.2 ms without partial process image; 2.2 ms with partial process image
<b>CPU/ programming</b>	
Programming language	
• STEP 7	Yes; V5.4, SP4 or higher, Engineering Tools (optional)
• LAD	Yes
• FBD	Yes
• STL	Yes
• SCL	Yes
• CFC	Yes
• GRAPH	Yes
• HiGraph®	Yes
Nesting levels	8
User program protection/ password protection	Yes
Software libraries	
• Easy Motion Control	Yes
• Software redundancy	Yes; from V1.2, operation of WinAC RTX with WinAC RTX only
Open Development interfaces	
• CCX (Custom Code Extension)	Yes; WinAC ODK V4.2 or higher
• SMX (Shared Memory Extension)	Yes; WinAC ODK V4.2 or higher
- Inputs	4 Kibyte
- Outputs	4 Kibyte
• CMI (Controller Management Interface)	Yes; WinAC ODK V4.2 or higher

### Technical specifications (continued)

6ES7 671-0RC07-0YA0	
<b>Product type designation</b>	SIMATIC WinAC RTX 2009
Number of simultaneously active SFCs	
• DPSYC_FR	20; of a total of 20 for all SFCs
• D_ACT_DP	20; of a total of 20 for all SFCs
• RD_REC	20; of a total of 20 for all SFCs
• WR_REC	20; of a total of 20 for all SFCs
• WR_PARM	20; of a total of 20 for all SFCs
• PARM_MOD	20; of a total of 20 for all SFCs
• WR_DPARM	20; of a total of 20 for all SFCs
• DPNRM_DG	20; of a total of 20 for all SFCs
• RDSYSST	20; of a total of 20 for all SFCs
Number of simultaneously active SFBs	
• RD_REC	20; of a total of 20 for all SFBs
• WR_REC	20; of a total of 20 for all SFBs
<b>Hardware requirements</b>	
Hardware required	PC with color monitor, keyboard, mouse or pointing device for Windows
Required memory on hard disk, min.	100 Mbyte
Main memory, min.	1 Gbyte
Processor	Intel Celeron M, 900 MHz or compatible
• Multi-processor system	Yes; Dual Pentium, CoreDuo, Core2Duo or compatible
• Hyper-threading	Yes
<b>Operating systems</b>	
Operating system	
• Windows NT 4.0	No
• Windows 2000	No
• Windows XP	Yes; Professional, SP2 and SP3
• Windows XP embedded	Yes; With the delivery image of the SIMATIC PC
- supported HAL types under Windows XP	PC with single core processor without hyperthreading: ACPI-PC, ACPI uniprocessor PC; PC with multicore processors or hyper-threading: ACPI multiprocessor PC, MPS multiprocessor PC;
• Windows Vista	No
<b>Dimensions and weight</b>	
Weight	
• Weight, approx.	100 g; with packaging

### Ordering data

Ordering data	Order No.
<b>SIMATIC WinAC RTX 2009</b>	<b>6ES7 671-0RC07-0YA0</b>
Software PLC for PC-based automation tasks with stringent deterministic requirements; PROFIBUS and PROFINET; CD-ROM with electronic documentation d, e, f; single license, executable under Windows XP SP2	

A: Subject to export regulations: AL: N and ECCN: EAR99S

C: Subject to export regulations: AL: N and ECCN: EAR99H

<b>SIMATIC WinAC RTX 2009 Upgrade</b>	A	<b>6ES7 671-0RC07-0YE0</b>
For upgrading from Basis/RTX V3.x, V4.0, V4.1 2005 and 2008; single license, executable under Windows XP SP2		
<b>SIMATIC WinAC NV128</b>	C	<b>6ES7 671-0AG00-1YA7</b>
PC plug-in card with non-volatile memory for the storage of up to 128 KB of retentive data in the event of voltage failure		
<b>CP 5611 A2 communications processor</b>		<b>6GK1 561-1AA01</b>
PCI card (32 bit) for connection of a programming device or PC to PROFIBUS		
<b>CP 5621 communications processor</b>		<b>6GK1 562-1AA00</b>
• PCI Express x1 card (32 bit) for connection of a programming device or PC to PROFIBUS	E	
• PCI Express x1 card (32 bit) CP 5621 and MPI cable, 5 m	E	<b>6GK1 562-1AM00</b>
<b>CP 5603 Microbox Package</b>	C	<b>6GK1 560-3AU00</b>
Comprising CP 5603 module and Microbox expansion rack		
<b>CP 5613 A2 communications processor</b>		<b>6GK1 561-3AA01</b>
PCI card (32 bit; 3.3 V/5 V) for connection to PROFIBUS incl. DP-Base software with NCM PC; DP-RAM interface for DP master, incl. PG and FDL protocol; single license for 1 installation, runtime software, software and electronic manual on CD-ROM, Class A, for 32 bit Windows 2000 Professional/Server, Windows XP Professional, German/English		
<b>CP 1616 communications processor</b>		<b>6GK1 161-6AA01</b>
PCI Card (32 bit; 3.3/5 V universal key) with ASIC ERTEC 400 for connecting PCs to PROFINET IO with 4-port real-time switch (RJ45); incl. IO-Base software for PROFINET IO controller (RT operation) and NCM PC; single license for one installation, runtime software, software and electronic manual on CD-ROM, Class A, for 32 bit Windows XP Professional; German/English		
<b>CP 1604 Microbox Package</b>		<b>6GK1 160-4AU00</b>
Package for implementing the CP 1604 in the SIMATIC Microbox PC; comprising the CP 1604, connection board, power supply and expansion rack for Microbox PC; for use with Development Kit DK-16xx PN IO; NCM PC		

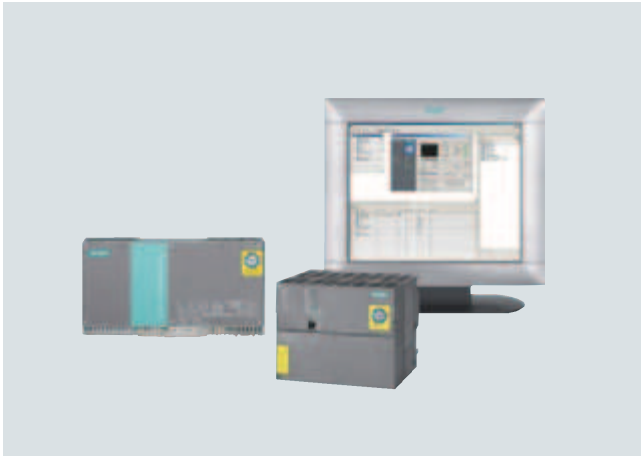
E: Subject to export regulations: AL: N and ECCN: 5D002ENC3

# Embedded/PC-based Automation

## PC-based Control

### SIMATIC WinAC RTX F

#### Overview



- SIMATIC WINAC RTX F:  
Optimized for applications that demand a high degree of flexibility and integration capability and that must also satisfy safety requirements up to SIL 3 (IEC 61508).
- The software solution for tasks that require hard deterministic behavior and high performance.
- With real-time expansion for assuring deterministic behavior for the control section.
- Distributed I/O can be connected over PROFIBUS and/or PROFINET, also safety-related over PROFIsafe.

#### Technical specifications

	6ES7 671-1RC07-0YA0
<b>Product type designation</b>	SIMATIC WinAC RTX F 2009
<b>Product version</b>	
Hardware product version	-
Firmware version	4.5
associated programming package	STEP7 V5.4 SP5 or higher + HSP135 as basic requirement for the HSP178 for WinAC RTX F 2009 on Embedded Controller + HSP179 for WinAC RTX F 2009 on PC station / iMap V3.0 SP1 / option package S7 Distributed Safety V5.4 SP5 or higher
<b>Memory</b>	
Work memory	
• integrated (for program)	4 Mbyte; Adjustable; depends on Non Paged Memory Pool
• integrated (for data)	4 Mbyte; Adjustable; depends on Non Paged Memory Pool
Load memory	
• integrated RAM, max.	8 Mbyte; Adjustable; depends on Non Paged Memory Pool
<b>CPU/ blocks</b>	
DB	
• Number, max.	65 535; Limited only by RAM set for data
FB	
• Number, max.	65 536; Limited only by RAM set for code
FC	
• Number, max.	65 536; Limited only by RAM set for code
OB	
• Number, max.	Limited only by RAM for code
• Number of free cycle OBs	1; OB 1
• Number of time alarm OBs	1; OB 10
• Number of delay alarm OBs	1; OB 20
• Number of watchdog interrupts	9; OB 30-38
• Number of process alarm OBs	1; OB 40

	6ES7 671-1RC07-0YA0
<b>Product type designation</b>	SIMATIC WinAC RTX F 2009
OB	
• Number of ODK OBs	3; OB 52-54
• Number of DPV1 alarm OBs	3; OB 55-57
• Number of isochronous mode OBs	2; OB 61-62
• Number of startup OBs	2; OB 100, 102
• Number of asynchronous error OBs	7; OB 80, 82-85, 86, 88
• Number of synchronous error OBs	2; OB 121, 122
Nesting depth	
• per priority class	24
• additional within an error OB	24
<b>CPU/ processing times</b>	
for bit operations, min.	0.004 µs; typ.
for fixed point arithmetic, min.	0.003 µs; typ.
for floating point arithmetic, min.	0.004 µs; typ.
Reference platform	Pentium IV, 2.4 GHz
<b>Times/counters and their retentivity</b>	
S7 counter	
• Number	2 048
• Retentivity	
- can be set	Yes
- lower limit	0
- upper limit	2047
- preset	8
• Counting range	
- can be set	Yes
- lower limit	0
- upper limit	999
IEC counter	
• present	Yes
• Type	SFB
S7 times	
• Number	2 048

### Technical specifications (continued)

6ES7 671-1RC07-0YA0	
<b>Product type designation</b>	SIMATIC WinAC RTX F 2009
S7 times	
• Retentivity	Yes
- can be set	0
- lower limit	2 047
- upper limit	0
- preset	
• Time range	
- lower limit	10 ms
- upper limit	9 990 s
IEC timer	
• present	Yes
• Type	SFB
<b>Data areas and their retentivity</b>	
Retentivity without UPS and PS Extension Board	128 KB with SIMATIC IPC427C and HMI IPC477C; further SIMATIC PCs on request
Retentivity with UPS	all data
Flag	
• Number, max.	16 Kibyte
• of which retentive	MB 0 to MB 16383
• Retentivity preset	MB 0 to MB 15
• Number of clock memories	8
Local data	
• adjustable, max.	32 Kibyte
• preset	16 Kibyte
• per priority class, max.	32 Kibyte
<b>Address area</b>	
I/O address area	
• overall	16 Kibyte
• Outputs	16 Kibyte
• of which, distributed	
- DP interface, inputs	16 Kibyte
- DP interface, outputs	16 Kibyte
- PN interface, inputs	16 Kibyte
- PN interface, outputs	16 Kibyte
Process image	
• Inputs, adjustable	8 Kibyte
• Outputs, adjustable	8 Kibyte
• Inputs, default	512 byte
• Outputs, default	512 byte
Subprocess images	
• Number of subprocess images, max.	15
Digital channels	
• Inputs	128 000
• Outputs	128 000
Analog channels	
• Inputs	8 000
• Outputs	8 000
<b>Hardware configuration</b>	
Submodules	
• Number of submodules, max	4

6ES7 671-1RC07-0YA0	
<b>Product type designation</b>	SIMATIC WinAC RTX F 2009
Submodules	
• of which PROFIBUS, max.	4; Supported interfaces: see 1st and 2nd interface
• of which Industrial Ethernet, max.	1; Supported interfaces: see 3rd and 4th interface
Number of operable FMs and CPs (recommended)	
• FM	4; FM distributed: FM 350-1/350-2, FM 351, FM 352, FM 353, FM 355/355-2
• CP, point-to-point	2; CP 340, CP 341 distributed
• CP, LAN	Over PC CP
<b>Time of day</b>	
Clock	
• Hardware clock (real-time clock)	Yes
• battery-backed and synchronizable	Yes
Runtime meter	
• Number	8
Clock synchronization	
• supported	Yes
• to PC-CP, slave	Yes
• on Ethernet via NTP	Yes
<b>S7 message functions</b>	
Number of login stations for message functions, max.	62
SCAN procedure	No
Process diagnostic messages	Yes; ALARM_S, ALARM_SQ, ALARM_D, ALARM_DQ
simultaneously active Alarm-S blocks, max.	20; of a total of 20 for all SFCs
Alarm 8-blocks	Yes
• Number of instances for alarm 8 and S7 communication blocks, max.	600
Process control messages	No
<b>Test commissioning functions</b>	
Status/control	
• Status/control variable	Yes
Forcing	
• Forcing	No
Status block	Yes
Single step	Yes
Diagnostic buffer	
• present	Yes
• Number of entries, max.	3 200
- preset	120
<b>Communication functions</b>	
PG/OP communication	Yes
Data record routing	No
Global data communication	
• supported	No
S7 basic communication	
• supported	No



# Embedded/PC-based Automation

## PC-based Control

### SIMATIC WinAC RTX F

#### Technical specifications (continued)

6ES7 671-1RC07-0YA0	
<b>Product type designation</b>	SIMATIC WinAC RTX F 2009
S7 communication	
• supported	Yes
• as server	Yes
• as client	Yes
• User data per job, max.	64 Kibyte; Depends on which block is used: BSEND/USEND or PUT/GET
Web server	
• Web server	No
Open IE communication	
• TCP/IP	Yes
- Number of connections, max.	Dependent on interface
- Data length, max.	64 KB - 2 bytes = 65534 bytes
• ISO-on-TCP (RFC1006)	No
• UDP	Yes
- Number of connections, max.	Dependent on interface
- Data length, max.	1 472 byte
Number of connections	
• overall	64
• usable for PG communication	
- reserved for PG communication	1
• usable for OP communication	
- reserved for OP communication	1
PROFINET CBA (at set setpoint communication load)	
• Setpoint for the CPU communication load	20 %
• Number of remote interconnection partners	64
• Number of functions, master/slave	30
• Total of all Master/Slave connections	1 000
• Data length of all incoming connections master/slave, max.	6 800 byte
• Data length of all outgoing connections master/slave, max.	6 800 byte
• Number of device-internal and PROFIBUS interconnections	500
• Data length of device-internal and PROFIBUS interconnections, max.	4 000 byte
• Data length per connection, max.	1 400 byte
• Remote interconnections with acyclic transmission	
- Sampling frequency: Sampling time, min.	500 ms
- Number of incoming interconnections	100
- Number of outgoing interconnections	100
- Data length of all incoming interconnections, max.	2 000 byte
- Data length of all outgoing interconnections, max.	2 000 byte
- Data length per connection, max.	1 400 byte

6ES7 671-1RC07-0YA0	
<b>Product type designation</b>	SIMATIC WinAC RTX F 2009
• Remote interconnections with cyclic transmission	
- Transmission frequency: Transmission interval, min.	10 ms
- Number of incoming interconnections	200
- Number of outgoing interconnections	200
- Data length of all incoming interconnections, max.	4 800 byte
- Data length of all outgoing interconnections, max.	4 800 byte
- Data length per connection, max.	250 byte
• HMI variables via PROFINET (acyclic)	
- Number of stations that can log on for HMI variables (PN OPC/iMap)	3
- HMI variable updating	500 ms
- Number of HMI variables	200
- Data length of all HMI variables, max.	2 000 byte
• PROFIBUS proxy functionality	
- supported	Yes
- Number of linked PROFIBUS devices	16
- Data length per connection, max.	240 byte; Slave-dependent
<b>1st interface</b>	
Type of interface	CP 5611-A2, CP 5621, integrated PB interface of the SIMATIC PC
Max. no. of simultaneously operable CPs	1
Physics	RS 485 / PROFIBUS
Isolated	Yes
Power supply to interface (15 to 30 V DC), max.	does not exist
Functionality	
• MPI	No
• DP master	Yes
• DP slave	No
DP master	
• Number of connections, max.	8
• Services	
- PG/OP communication	Yes
- Routing	Yes
- Global data communication	No
- S7 basic communication	No
- S7 communication	Yes
- Equidistance mode support	Yes; Only in conjunction with isochronous mode
- Isochronous mode	Yes
- SYNC/FREEZE	Yes
- Activation/deactivation of DP slaves	Yes
- Direct data exchange (slave-to-slave communication)	Yes

### Technical specifications (continued)

6ES7 671-1RC07-0YA0	
<b>Product type designation</b>	SIMATIC WinAC RTX F 2009
DP master	
• Services	
- DPV0	Yes
- DPV1	Yes
• Transmission speeds, max.	12 Mbit/s
• Number of DP slaves, max.	64
• Address area	
- Inputs, max.	16 Kibyte
- Outputs, max.	16 Kibyte
• User data per DP slave	
- Inputs, max.	244 byte
- Outputs, max.	244 byte
<b>2nd interface</b>	
Type of interface	CP 5613, CP 5613-A2, CP 5603
Max. no. of simultaneously operable CPs	4
Physics	RS 485 / PROFIBUS
Isolated	Yes
Functionality	
• MPI	No
• DP master	Yes
• DP slave	No
DP master	
• Number of connections, max.	50
• Services	
- PG/OP communication	Yes
- Routing	Yes
- Global data communication	No
- S7 basic communication	No
- S7 communication	Yes
- Equidistance mode support	Yes; Only in conjunction with isochronous mode
- Isochronous mode	Yes
- SYNC/FREEZE	Yes
- Activation/deactivation of DP slaves	Yes
- Direct data exchange (slave-to-slave communication)	Yes
- DPV0	Yes
- DPV1	Yes
• Transmission speeds, max.	12 Mbit/s
• Number of DP slaves, max.	125
• Address area	
- Inputs, max.	16 Kibyte
- Outputs, max.	16 Kibyte
• User data per DP slave	
- Inputs, max.	244 byte
- Outputs, max.	244 byte
<b>3rd interface</b>	
Type of interface	PROFINET
Max. no. of simultaneously operable CPs	1; Intel Pro/1000 (Intel 82571EB, 82573L, 82574L, 82541PI; non shared IRQ required); integrated IE interface SIMATIC PC 4x7B, 6x7B, 8x7B and IPC4x7C

6ES7 671-1RC07-0YA0	
<b>Product type designation</b>	SIMATIC WinAC RTX F 2009
Physics	Ethernet
Isolated	Yes
automatic detection of transmission speed	Yes; 10/100 Mbit/s
Functionality	
• PROFINET IO Controller	Yes
• PROFINET IO Device	No
• PROFINET CBA	Yes
• Open IE communication	Yes
• Web server	No
PROFINET IO Controller	
• Services	
- PG/OP communication	Yes
- Routing	Yes; S7 routing
- S7 communication	Yes
- Open IE communication	Yes
• Transmission speeds, min.	100 Mbit/s
• Transmission rate, max.	100 Mbit/s
• Total number of connectable IO Devices, max.	128
• IRT, supported	No
• Prioritized startup supported	Yes
- Number of IO Devices, max.	32
• Activation/deactivation of IO Devices	Yes
- Number of IO Devices that can be simultaneously activated/deactivated, max.	8
• IO Devices changing during operation (partner ports), supported	Yes
• Device replacement without swap medium	Yes
• Send clock times	1 ms
• Updating time	1 - 512 ms (minimum value depends on communication share set for PROFINET I/O, on the number of I/O devices, and on the volume of configured user data)
• Address area	
- Inputs, max.	16 Kibyte
- Outputs, max.	16 Kibyte
• User data per address area, max.	2 kbyte
- User data consistency, max.	256 byte
SIMATIC communication	
• PG/OP communication	Yes
• S7 routing	Yes
• S7 communication	Yes
• Number of connections, max.	16
Open IE communication	
• Open IE communication, supported	Yes
• Number of connections, max.	32

# Embedded/PC-based Automation

## PC-based Control

### SIMATIC WinAC RTX F

#### Technical specifications (continued)

6ES7 671-1RC07-0YA0	
<b>Product type designation</b>	SIMATIC WinAC RTX F 2009
Open IE communication	
• Local port numbers used at the system end	0, 20, 21, 23, 25, 80, 102, 135, 161, 8 080, 34 962, 34 963, 34 964, 65 532, 65 533, 65 534, 65 535
<b>4th interface</b>	
Type of interface	PROFINET
Max. no. of simultaneously operable CPs	CP 1616 (HW release 8 or above), CP 1604 (HW release 7 or higher), integrated PN interface of SIMATIC PC and S7-mEC
Physics	Ethernet
Isolated	Yes
automatic detection of transmission speed	Yes; 10/100 Mbit/s
Functionality	
• PROFINET IO Controller	Yes
• PROFINET CBA	Yes
• Open IE communication	Yes
• Web server	No
PROFINET IO Controller	
• Services	
- PG/OP communication	Yes
- Routing	Yes; S7 routing
- S7 communication	Yes
- Open IE communication	Yes
• Transmission rate, min.	100 Mbit/s
• Transmission rate, max.	100 Mbit/s
• Total number of connectable IO Devices, max.	256
• Number of IO Devices with IRT and the option "high flexibility", max.	64
- of which in line, max.	32
• IRT, supported	Yes
• Prioritized startup supported	Yes
- Number of IO Devices, max.	32
• Activation/deactivation of IO Devices	Yes
- Number of IO Devices that can be simultaneously activated/deactivated, max.	8
• IO Devices changing during operation (partner ports), supported	Yes
• Device replacement without swap medium	Yes
• Send clock times	250 µs, 500 µs, 1 ms
• Updating time	0.25...512 depending on the send cycle
• Address area	
- Inputs, max.	16 byte; KB
- Outputs, max.	16 byte; KB
• User data per address area, max.	2 byte
- User data consistency, max.	256 byte; Byte

6ES7 671-1RC07-0YA0	
<b>Product type designation</b>	SIMATIC WinAC RTX F 2009
SIMATIC communication	
• PG/OP communication	Yes
• S7 routing	Yes
• S7 communication	Yes
• Number of connections, max.	32
Open IE communication	
• Open IE communication, supported	Yes
• Number of connections, max.	32
• Local port numbers used at the system end	0, 20, 21, 25, 80, 102, 135, 161, 34 962, 34 963, 34 964, 65 532, 65 533, 65 534, 65 535
<b>Isochronous mode</b>	
Isochronous mode	Yes; only PROFIBUS
Number of DP masters with isochronous mode	2
User data per isochronous slave, max.	128 byte
equidistance	Yes
shortest clock pulse	2.2 ms; 2.2 ms without partial process image; 2.2 ms with partial process image
<b>CPU/ programming</b>	
Programming language	
• STEP 7	Yes; V5.4 SP5 + HSP135 as basic requirement for the HSP178 for WinAC RTX F 2009 on Embedded Controller + HSP179 for WinAC RTX F 2009 on PC station, engineering tools (optional)
• LAD	Yes
• FBD	Yes
• STL	Yes
• SCL	Yes
• CFC	Yes
• GRAPH	Yes
• HiGraph®	Yes
Nesting levels	8
User program protection/ password protection	Yes
Software libraries	
• Easy Motion Control	Yes
• Software redundancy	Yes; from V1.2, operation of WinAC RTX with WinAC RTX only
Open Development interfaces	
• CCX (Custom Code Extension)	Yes; WinAC ODK V4.2 or higher
• SMX (Shared Memory Extension)	Yes; WinAC ODK V4.2 or higher
- Inputs	4 Kibyte
- Outputs	4 Kibyte
• CMI (Controller Management Interface)	Yes; WinAC ODK V4.2 or higher

**Technical specifications** (continued)

6ES7 671-1RC07-0YA0	
<b>Product type designation</b>	SIMATIC WinAC RTX F 2009
Number of simultaneously active SFCs	
• DPSYC_FR	20; of a total of 20 for all SFCs
• D_ACT_DP	20; of a total of 20 for all SFCs
• RD_REC	20; of a total of 20 for all SFCs
• WR_REC	20; of a total of 20 for all SFCs
• WR_PARM	20; of a total of 20 for all SFCs
• PARM_MOD	20; of a total of 20 for all SFCs
• WR_DPARM	20; of a total of 20 for all SFCs
• DPNRM_DG	20; of a total of 20 for all SFCs
• RDSYSST	20; of a total of 20 for all SFCs
Number of simultaneously active SFBs	
• RD_REC	20; of a total of 20 for all SFBs
• WR_REC	20; of a total of 20 for all SFBs
<b>Hardware requirements</b>	
Hardware required	PC with color monitor, keyboard, mouse or pointing device for Windows
Required memory on hard disk, min.	100 Mbyte
Main memory, min.	1 Gbyte
Processor	
• Multi-processor system	No
• Hyper-threading	Yes
<b>Operating systems</b>	
Operating system	
• Windows NT 4.0	No
• Windows 2000	No
• Windows XP	Yes; Professional, SP2 and SP3
• Windows XP embedded	Yes; With the delivery image of the SIMATIC PC
- supported HAL types under Windows XP	PC with single core processor without hyperthreading; ACPI-PC, ACPI uniprocessor PC; PC with multicore processors or hyperthreading; ACPI multiprocessor PC, MPS multiprocessor PC;
• Windows Vista	No
<b>Dimensions and weight</b>	
Weight	
• Weight, approx.	100 g; with packaging

**Ordering data****Order No.**

SIMATIC WinAC RTX F 2009		A	6ES7 671-1RC07-0YA0
<b>CP 5611 A2 communications processor</b>			<b>6GK1 561-1AA01</b>
PCI card (32 bit) for connection of a programming device or PC to PROFIBUS			
<b>CP 5621 communications processor</b>		E	<b>6GK1 562-1AA00</b>
PCI Express x1 card (32 bit) for connection of a programming device or PC to PROFIBUS			
		E	<b>6GK1 562-1AM00</b>
PCI Express x1 card (32 bit) CP 5621 and MPI cable, 5 m			
<b>CP 5603 Microbox Package</b>		C	<b>6GK1 560-3AU00</b>
Comprising CP 5603 module and Microbox expansion rack			
<b>CP 5613 A2 communications processor</b>			<b>6GK1 561-3AA01</b>
PCI card (32 bit; 3.3 V/5 V) for connection to PROFIBUS incl. DP-Base software with NCM PC; DP-RAM interface for DP master, incl. PG and FDL protocol; single license for 1 installation, runtime software, software and electronic manual on CD-ROM, Class A, for 32 bit Windows 2000 Professional/Server, Windows XP Professional, German/English			
<b>CP 1616 communications processor</b>			<b>6GK1 161-6AA01</b>
PCI Card (32 bit; 3.3/5 V universal key) with ASIC ERTEC 400 for connecting PCs to PROFINET IO with 4-port real-time switch (RJ45); incl. IO-Base software for PROFINET IO controller (RT operation) and NCM PC; single license for one installation, runtime software, software and electronic manual on CD-ROM, Class A, for 32 bit Windows XP Professional; German/English			
<b>CP 1604 Microbox Package</b>			<b>6GK1 160-4AU00</b>
Package for implementing the CP 1604 in the SIMATIC Microbox PC; comprising the CP 1604, connection board, power supply and expansion rack for Microbox PC; for use with Development Kit DK-16xx PN IO; NCM PC			

A: Subject to export regulations: AL: N and ECCN: EAR99S

C: Subject to export regulations: AL: N and ECCN: EAR99H

E: Subject to export regulations: AL: N and ECCN: 5D002ENC3

# Embedded/PC-based Automation

## PC-based Control

### SIMATIC WinAC ODK

#### Overview



- SIMATIC WinAC software PLCs support powerful interfaces which permit close meshing of the control task with PC-based applications.
- WinAC ODK allows the user to develop applications or to integrate already existing applications into the control task.

New with WinAC ODK V4.2:

- CCX interface:
  - New SFB 65003 for asynchronous execution of ODK applications
  - Expansion of data access functions
  - Creation of Windows DLL with C# and VB
- SMX interface:
  - Access to the Shared Memory interface under IntervalZero RTX
  - Expansion of data access functions
  - Creation of Windows applications with C# and VB
- Supports MS Visual Studio 2005 and 2008 (under Windows)

#### Technical specifications

6ES7 806-1CC03-0BA0	
<b>Product type designation</b>	SIMATIC WinAC ODK V4.2
Open Development interfaces	
• CCX (Custom Code Extension)	Yes; WinAC RTX 2008 (V4.4) or higher; programming languages: Microsoft Visual C++ V6.0 SP5 or higher, .net 2003, 2005, 2008; Microsoft Visual Basic 2005, 2008; Microsoft Visual C# 2005, 2008
• SMX (Shared Memory Extension)	Yes; WinAC RTX 2008 (V4.4) or higher; programming languages: Microsoft Visual C++ V6.0 SP5 or higher, .net 2003, 2005, 2008; Microsoft Visual Basic 2005, 2008; Microsoft Visual C# 2005, 2008
• CMI (Controller Management Interface)	Yes; WinAC RTX 2005 SP2 (V4.3) or higher; programming languages: Microsoft Visual C++ V6.0 SP5 or higher, .net 2003, 2005, 2008; Microsoft Visual Basic V6.0 SP5 or higher, .net 2003, 2005, 2008; Microsoft Visual C# .net 2003, 2005, 2008
<b>Hardware requirements</b>	
Hardware required	PC with color monitor, keyboard, mouse or pointing device for Windows
Required memory on hard disk, min.	30 Mbyte
Main memory, min.	512 Mbyte
Processor	Intel Pentium 800 MHz
<b>Software requirement</b>	
Software required	Microsoft Visual Developer Studio, for details see interfaces; CCX and SMX realtime applications in addition: IntervalZero SDK V8.1 (SDK version must match the WinAC RTX version)
<b>Operating systems</b>	
Operating system	
• Windows XP	Yes; Professional, SP2 and SP3
<b>Dimensions and weight</b>	
Weight	
• Weight, approx.	200 g

#### Ordering data

#### Order No.

##### SIMATIC WinAC ODK V4.2

for integration of C/C++ code in WinAC PLCs, executable under Windows XP SP2 or SP3; CD-ROM with electronic documentation

Single license

A

**6ES7 806-1CC03-0BA0**

A: Subject to export regulations: AL: N and ECCN: EAR99S