



Datasheet for CoDeSys V3



SH-2A

Object code generation and runtime system data

Supported C compiler for the runtime system

Renesas SuperH RISC engine C/C++ compiler

Code / data

Maximum code size	Unlimited
Maximum data size	Unlimited
Maximum number of POU's	Unlimited
Maximum size of POU's	Unlimited
Maximum size of variables	Unlimited
Maximum relative jump distance	Unlimited
Minimum memory requirement for the runtime code	300 kB
Recommended memory size for the runtime code	600 kB
Minimum memory requirement for the runtime data	200 kB
Recommended memory for the runtime data	1 MB
Recommended memory size for the application code	1 MB (depends on the application(s))
Recommended data size for the application(s)	1 MB (depends on the application(s))

External functions

C libraries (function reference resolution in the runtime)	Yes
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Multitasking

The CoDeSys runtime can run in a multitasking environment either natively with one of the supported OS or with additional specific development.

Programming

Online change	Yes
FPU support	Yes

Debugging

Monitoring	Yes
Forcing	Yes
Trace	Yes
Breakpoints	Yes
Flow control	Not yet implemented
Call stack	Yes
Call stack after exception	Not yet implemented

Communication

Serial RS 232	Yes
UDP	On demand
CAN	On demand
USB	On demand
Others	On demand

IEC data types

- All
- 64 bits (some with external function call - depending on the C compiler)

Generated code size test

Test project 1000 Instructions IL corresponds to	5502 / 4090 bytes generated code for BYTE / DWORD
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Performance test

Test project:

LD A
AND B
ST C

1000 IL

Results:

Hardware	Variables	Time
SH-2A at 160 MHz (RSKSH7211) external memory	BIT	3,8 ms
	BOOL	1,0 ms
	BYTE	1,0 ms
	WORD	1,0 ms
	DWORD	1,1 ms
SH-2A at 160 MHz (RSKSH7211) internal memory	BOOL	32 us
	BYTE	32 us
	WORD	32 us
	DWORD	32 us

HIES SH-2 CPU at 100 MHz Bus 50 MHz (SH7619)	BIT (AND)	238 us
	BOOL (AND)	37 us
	BYTE (AND)	37 us
	WORD (AND)	37 us
	DWORD (AND)	26 us
	BYTE (ADD)	45 us
	WORD (ADD)	37 us
	DWORD (ADD)	26 us
	REAL (ADD)	1ms
	BYTE (MUL)	55 us
	WORD (MUL)	55 us
	DWORD (MUL)	40 us
	REAL (MUL)	1ms
	BYTE (DIV)	600 us
	WORD (DIV)	600 us
DWORD (DIV)	550 us	
REAL (DIV)	1ms	