

# EtherCAT Slave Controller Overview

as of January 2015



Name	ET1100	ET1200	ET1810/ET1811/ET1812	ET1851/ET1816/ET1817	netX 100	netX 500	netX 50	netX51	netX52	netX6	Anybus NP40	fido5200	RZ/T1	R-IN32M3-EC	Sitara AM3357/9
Type	ASIC	ASIC	Altera FPGA + IP Core	Xilinx FPGA + IP Core	ASIC	ASIC	ASIC	ASIC	ASIC	ASIC	ARM MPU	ASIC	ARM MPU	ARM MPU	ARM MPU
Supplier															
Package	BGA128 0,8mm pitch	QFN48 0,5mm pitch	FPGA dependent	FPGA dependent	BGA345 1mm pitch	BGA345 1mm pitch	PBGA324 1mm pitch	PBGA324 1mm pitch	PBGA344 1mm pitch	PBGA244 1mm pitch	BGA VF400 0.8 mm pitch	144 FBGA (0.8 mm) 144 LQFP (0.5 mm)	FBGA320 0.8 mm pitch	BGA324 1 mm pitch	32ANFBGA 0.8 mm pitch
Size	10 x 10 mm	7 x 7 mm	FPGA dependent	FPGA dependent	22 x 22 mm	22 x 22 mm	19 x 19 mm	19 x 19 mm	15 x 15 mm	15 x 15 mm	17 x 17 mm	10 x 10 mm (FBGA) 20 x 20 mm (LQFP)	17 x 17 mm	19 x 19 mm	15 x 15 mm
µC Interface	serial/parallel (8/16bit, sync/async)*	serial*	serial/parallel (8- /16-bit, async) AVALON**	serial/parallel (8- /16-bit, async) OPB** and PLB**	µC bus (internal, 32bit)	µC bus (internal, 32bit)	µC bus (internal, 32bit)	µC bus (internal, 32bit)	µC bus (internal, 32bit)	µC bus (internal, 32bit)	Anybus interface (8- / 16-bit 30 ns parallel, 20 Mbit SPI, Shift register, UART)	parallel (16/32-bit)	16/32-bit parallel and various serial (SPI/I2C/UART)	16/32-bit parallel (master/slave) and serial (SPI/I2C/UART)	200 MHz interconnect (internal, 32bit)
Digital I/O	8-32*	8-16*	8-32*	8-32*	-	-	-	-	-	-	256 / 256 (Shift register mode)	8 (Event Output/Capture)	-	-	8/8
General Purpose I/O	0-32*	0-12*	0-128*	0-128*	16	16	32	32	24	24	-	-	0-209*	0-96*	> 32
DPRAM	8 kByte	1 kByte	1...60 kByte*	1...60 kByte*	256/512 Byte (Mailbox/Process Data)	256/512 Byte (Mailbox/Process Data)	6 kByte	6 kByte	6 kByte	6 kByte	12 kByte	8 kByte	8 kByte	8 kByte	8kByte
SyncManager Entities	8	4	0..8*	0..8*	4	4	8	8	8	8	4	8	8	8	8
FMMU Entities	8	3	0..8*	0..8*	3	3	8	8	8	8	4	8	8	8	8
Distributed Clock Support	yes	yes	yes*	yes*	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes
No. of Ports	2-4 (MIU/E-BUS)*	2-3 (E-BUS/max. 1 x MIU)*	1-3 (MIU/max. 2 RMII)	1-3 (MIU/max. 2 RMII)	2 (100BaseTX)	2 (100BaseTX)	2 (100BaseTX)	2 (100BaseTX)	2 (100BaseTX)	2 (100BaseTX)	2 (MIU)	2 (MIU/RMII/GMII)	3 (2 for ESC)	2 (100BaseTX)	2 (MIU/RMII/GMII)
Specials	BGA routable with standard PCB	-	Various license models and OpenCore Plus are available. A wide range of Altera FPGAs are supported	Various license models and evaluation Version are available. A wide range of Xilinx FPGAs are supported	Multi-protocol support, integrated PHYs, integrated µC (ARM9-200MHz)	Multi-protocol support, integrated PHYs, integrated µC (ARM9-200MHz)	Multi-protocol support, integrated PHYs, integrated µC (ARM9-200MHz)	Multi-protocol support, integrated PHYs, integrated µC (ARM9-100MHz)	Multi-protocol support, integrated PHYs, integrated µC (ARM9-100MHz)	Multi-protocol support, integrated PHYs	Multi-protocol support, ESC Frame forwarding delay: 114 ns, MDP, possible to implement several device profiles	Multi-protocol support, Gigabit Ethernet support, Event Output/Capture I/O	Multi-protocol support, security option, functional safety support, Cortex-R4F (450/600MHz), Cortex-M3 (150MHz) cores	Multi-protocol support, SPI, I2C, UART, 1.3 MByte int. RAM, <1W typical incl. 2 PHYs	Multi-protocol support, Gigabit Switch, CAN, display, motor control ARM Cortex A8 (275 MHz-720 MHz)
Further information	<a href="http://www.beckhoff.com/english/ethercat/et1100_et1200.htm">www.beckhoff.com/english/ethercat/et1100_et1200.htm</a>		<a href="http://www.beckhoff.com/english/ethercat/ec_license_overview.htm">www.beckhoff.com/english/ethercat/ec_license_overview.htm</a>		<a href="http://www.hilscher.com/netx.html">www.hilscher.com/netx.html</a>						<a href="http://www.anybus.com/products/np40/about">www.anybus.com/products/np40/about</a>	<a href="http://www.innovasic.com">www.innovasic.com</a>	<a href="http://www.renesas.eu/products/rtems/c/rmz3g">www.renesas.eu/products/rtems/c/rmz3g</a>	<a href="http://www.renesas.eu/automation">www.renesas.eu/automation</a>	<a href="http://www.ti.com/automation">www.ti.com/automation</a>
Data Sheet	<a href="http://www.beckhoff.com/english/download/ethercat_development_products.htm">http://www.beckhoff.com/english/download/ethercat_development_products.htm</a>											<a href="http://www.anybus.com/Products/np40/np40_datasheet.pdf">www.anybus.com/Products/np40/np40_datasheet.pdf</a>	<a href="http://www.innovasic.com/Products/InnoASIC/InnoASIC_datasheet.pdf">www.innovasic.com/Products/InnoASIC/InnoASIC_datasheet.pdf</a>	<a href="http://www.renesas.com/Products/PowerManagement/PowerManagement_datasheet.pdf">www.renesas.com/Products/PowerManagement/PowerManagement_datasheet.pdf</a>	<a href="http://www.ti.com/Products/PowerManagement/PowerManagement_datasheet.pdf">www.ti.com/Products/PowerManagement/PowerManagement_datasheet.pdf</a>

\*configurable

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