

Catalyst TC

Catalyst XL Compatibility

Rev 2 – June 2011 – 110125-50022

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Document Revision History

REVISION	DESCRIPTION	DATE
1	Preliminary release	February 2011
2	Initial release	June 2011

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Introduction

The Catalyst TC conforms to the same footprint as Eurotech's Catalyst XL. However, each module is based on a different Intel® Atom™ processor providing different feature sets and a unique pinout on connector J1. The Catalyst XL is based on the Intel® Atom™ processor Z5xxP/PT, whereas the Catalyst TC is based on the Intel Atom processor E6xx. Each module maximizes the performance capabilities of the processor while maintaining low power consumption.

The Catalyst XL-T is a Catalyst TC configured for pin-compatibility with the Catalyst XL. This configuration allows existing customers to use the Catalyst XL-T with carrier boards design for the Catalyst XL providing a migration path to the Catalyst TC with minimal effort.

This technical bulletin describes the differences between the Catalyst XL, Catalyst XL-T, and Catalyst TC. It relates to the products summarized in the following table where "x" is the variant number:

Part Number	Description
900123-3xxxRx	Catalyst XL
900125-5xxxRx	Catalyst TC

Comparison

Feature Comparison

The following table summarizes the feature differences between the Catalyst XL, Catalyst XL-T, and Catalyst TC. For a complete description of the features, refer to the Catalyst XL Design-In Guide (Eurotech document 110123-3003) and Catalyst TC Design-In Guide (Eurotech document 110125-5000).

Catalyst XL	Catalyst XL-T	Catalyst TC
Intel Atom processor (Z5xxP/PT)	Intel Atom processor (E6xx)	Intel Atom processor (E6xx)
Intel SCH US15W	Intel PCH EG20T	Intel PCH EG20T
-	(eMMC flash SSD, custom configuration)	eMMC flash SSD (optional)
Integrated BIOS with external BIOS support	Integrated BIOS with additional GPIO	Integrated BIOS with additional GPIO
-	(SATA, custom configuration)	SATA
IDE/PATA	IDE/PATA	-
2 x PCIe	2 x PCIe (3 x PCIe, custom configuration)	3 x PCIe
8 x USB host ports with USB client option	8 x USB host ports with USB client option	9 x USB host ports with USB client option
3 x SD/MMC	2 x SD/MMC (1 x SD/MMC, custom configuration)	1 x SD/MMC
-	-	4 x Serial ports
-	-	Gigabit Ethernet
-	-	CAN 2.0
1 x I ² C bus	1 x I ² C bus	2 x I ² C bus
-	-	SPI bus
2 x GPIO	3 x GPIO	6 x GPIO
Power consumption 2-5W	Power consumption (To Be Determined)	Power consumption (To Be Determined)

Connector Comparison

The Catalyst TC offers more capability integrated onto the module and replaces two of the Catalyst XL's memory options with increased connectivity. As a result of these differences, some pin assignments on connector J1 of the Catalyst TC differ from those of the Catalyst XL and Catalyst XL-T. The following table summarizes the differences in pin assignments between the Catalyst XL, Catalyst XL-T, and Catalyst TC.

Catalyst XL	Catalyst XL-T	Catalyst TC
External BIOS support	Additional GPIO	Additional GPIO
SD slot 1	SD slot 1	SATA 1 and PCIe 2
SD slot 2	-	Gigabit Ethernet
IDE/PATA	IDE/PATA	SPI bus, I ² C bus, CAN 2.0, SP0, SP1, SP2, SP3, USB8, and GPIO3-5

Signal Header Differences

The following table defines the differences between the electrical signals available on the J1 connector of the Catalyst XL, Catalyst XL-T, and Catalyst TC.

Notice that the signals are grouped according to functionality and that only the differences are shown. For a complete listing of the J1 connectors, refer to the Catalyst XL Design-In Guide (Eurotech document 110123-3003) and Catalyst TC Design-In Guide (Eurotech document 110125-5000).

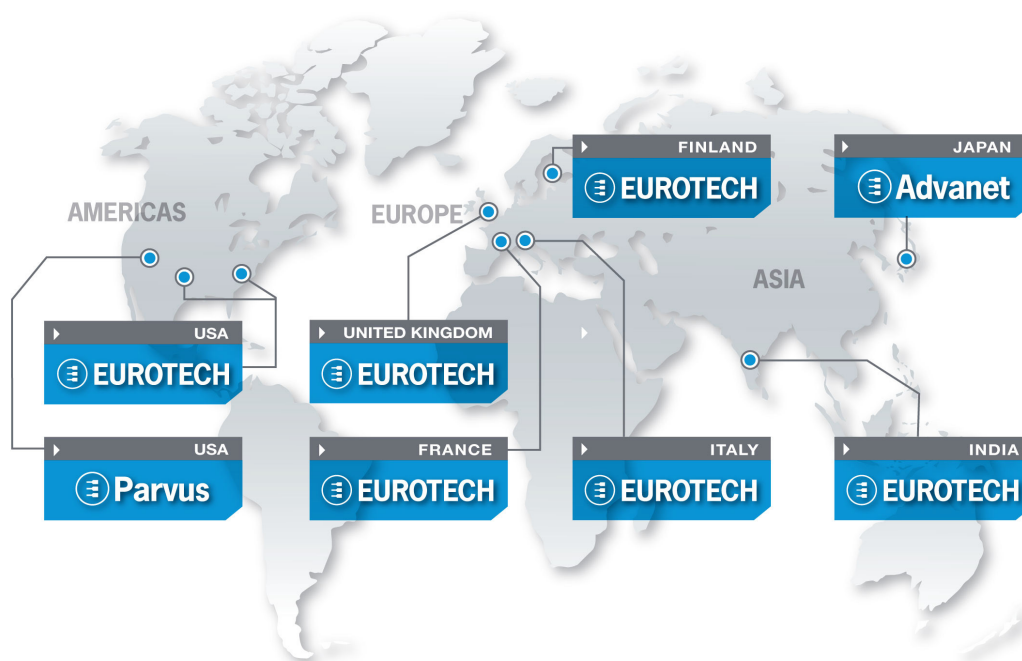
Pin	Catalyst XL (note 1, 2)	Catalyst XL-T	Catalyst TC
Mode Select (1 pin)			
B103	GND	Cat_TC Detect (note 3)	Cat_TC Detect (note 4)
External BIOS Support to GPIO (1 pin)			
A2	FWH_WP#	GPIO6	GPIO6
SD Slot 1 to SATA 1 and PCIe 2 (10 pins)			
A17	SLOT1_PWR#	SLOT1_PWR#	SATA1_TX_P
B15	SLOT1_CMD	SLOT1_CMD	Reserved
B16	SLOT1_WP	SLOT1_WP	PCIE_TX_SLOT2_P
A20	SLOT1_CD#	SLOT1_CD#	SATA1_RX_N
A18	SLOT1_LED	SLOT1_LED	SATA1_TX_N
A19	SLOT1_CLK	SLOT1_CLK	SATA1_RX_P
B18	SLOT1_DATA0	SLOT1_DATA0	PCIE_RX_SLOT2_P
A14	SLOT1_DATA1	SLOT1_DATA1	Reserved
B17	SLOT1_DATA2	SLOT1_DATA2	PCIE_TX_SLOT2_N
B19	SLOT1_DATA3	SLOT1_DATA3	PCIE_RX_SLOT2_N
SD Slot 2 to Ethernet (14 pins)			
B14	SLOT2_PWR#	NC (note 5)	Reserved
B24	SLOT2_CMD	NC	LAN_LED2
B27	SLOT2_WP	NC	LAN_LED1
B22	SLOT2_CD#	NC	MDI1_P
A24	SLOT2_LED	NC	LAN_LED0
A28	SLOT2_CLK	NC	MDI3_N
B20	SLOT2_DATA0	NC	Reserved
A26	SLOT2_DATA1	NC	MDI2_N
B26	SLOT2_DATA2	NC	Reserved
A22	SLOT2_DATA3	NC	MDI0_P
B23	SLOT2_DATA4	NC	MDI1_N
A23	SLOT2_DATA5	NC	MDI0_N
A27	SLOT2_DATA6	NC	MDI3_P
A25	SLOT2_DATA7	NC	MDI2_P
IDE to SPI Bus, Serial Ports, I²C Bus, CAN, USB 8, and GPIO (27 pins)			
A37	IDE_PDIOW#	IDE_PDIOW#	SPI_MISO
A42	IDE_PDA0	IDE_PDA0	SPI_MOSI
A43	IDE_PDD0	IDE_PDD0	SPI_SCK
A44	IDE_PDD3	IDE_PDD3	SPI_SSN
A45	IDE_PDD9	IDE_PDD9	TC_I2C_SCL
A46	IDE_PDA2	IDE_PDA2	TC_I2C_SDA
A47	IDE_PDD5	IDE_PDD5	CAN_RX
A48	IDE_PDD6	IDE_PDD6	CAN_TX
A49	IDE_PDD1	IDE_PDD1	SP0_TX
A50	IDE_PDIOR#	IDE_PDIOR#	SP0_RX
A52	IDE_PDD2	IDE_PDD2	SP0_RTS
A53	INT_IRQ14	INT_IRQ14	SP0_RI
A54	IDE_PDIORDY	IDE_PDIORDY	SP0_DTR
A55	IDE_PDCS1#	IDE_PDCS1#	SP0_DSR
A56	IDE_PDCS3#	IDE_PDCS3#	SP0_DCD
B42	IDE_PDD11	IDE_PDD11	SP0_CTS
B43	IDE_PDD15	IDE_PDD15	SP1_TX
B44	IDE_PDD8	IDE_PDD8	SP1_RX
B45	IDE_PDD13	IDE_PDD13	SP2_TX
B46	IDE_PDD12	IDE_PDD12	SP2_RX

Pin	Catalyst XL (note 1, 2)	Catalyst XL-T	Catalyst TC
B47	IDE_PDDREQ	IDE_PDDREQ	SP3_TX
B48	IDE_PDD14	IDE_PDD14	SP3_RX
B49	IDE_PDD10	IDE_PDD10	USB8_P
B50	IDE_PDD4	IDE_PDD4	USB8_N
B40	IDE_PDD7	IDE_PDD7	GPIO3
B52	IDE_PDA1	IDE_PDA1	GPIO4
B54	IDE_PDDACK#	IDE_PDDACK#	GPIO5

Notes:

1. Signal names may not be the same as those used in the Catalyst XL Design-In Guide (Eurotech document 110123-3003); however, the functionality is the same.
2. PCIe numbering begins at 0, while the Catalyst XL Design-In Guide (Eurotech document 110123-3003) begins PCIe numbering at 1.
3. For the Catalyst XL-T, connect Cat_TC_Detect to ground on the carrier board.
4. For the Catalyst TC, include a 10k Ω pull-up resistor to V3.3A and a 10k Ω pull-down resistor on the carrier board.
5. NC is the abbreviation for No Connection.

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