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Subject: Special FPGA Versions

APPLICATION NOTE

1. Summary

Many Trio products contain FPGA's (Field Programmable Gate Arrays) that can be reprogrammed, thus adding or changing the hardware functionality of the product. At the time of writing, all existing products need to be factory programmed but it may be possible for field upgrades in the future. This capability to change the hardware functionality allows support to be added for new interfaces that might become available after a product is launched, add a feature into the hardware that is required for a particular application but cannot be run fast enough or accurate enough in software, or provide a different mix of functionality to that supplied in the standard product.

A number of special versions have been produced and a summary of these is given in this application note. As well as making customers aware of what is already available, this list should be viewed as an indication of what could be possible. If a customer has an application that does not fit exactly with a standard Trio product and there is sufficient volume or the new feature would provide a useful enhancement for other applications, then we are always pleased to discuss the possibility of producing a special version of one of our products.

2. Products Capable of FPGA Reprogramming

Most recent Trio products have FPGA's that can be reprogrammed. The products on the current price list (7th June 2010) that support this feature are listed below.

Order Code	Product Description
P136	MC206X
P151/P156	Euro205x
P159	Euro209
P180	PCI208
P860	MC464
P871	MC464 Panasonic "RealTimeEXpress" Interface
P872	MC464 SERCOS II Interface
P873	MC464 Control Techniques SLM Interface

P874	MC464 Flexible 8 Axis Interface
P875	MC464 Anybus CompactCom Carrier Module
P876	MC464 EtherCAT Interface
P879	MC464 Flexible 4 Axis Interface

3. Special Versions of FPGA already available

When a special version of a product FPGA is produced it can be ordered with a unique order code, which will be different to the standard order code for the base product on which the FPGA is changed. At the time of writing the special versions available are listed in the table below.

Order Code for Special FPGA	Base Product Code	Change Description
P153	P151	PWM Output on axes 2 & 3, including gating function.
P152	P151	SSI absolute encoder support instead of Tamagawa absolute encoder support on all 4 internal axes.
P154	P151	EnDAT absolute encoder support on axes 0 & 1. Tamagawa absolute encoder support still available on axes 2 & 3.
P485	P159	EnDAT absolute encoder support on axes 0 & 1.
P486	P159	PWM Output on axes 4 to 7, gating function not available (See TN20_106).
P186	P180	PCI214 - 14 axis step and direction output in PCI card format. As well as the FPGA reprogrammed, an adapter board has to be fitted to the PCI card to provide the physical layer interfaces for two of the extra axes.
P480	P180	8 axis of EnDAT absolute encoder support instead of 8 axis incremental encoder.
P481	P180	8 axis of Tamagawa absolute encoder support instead of 8 axis incremental encoder.
P482	P180	4 axis of Tamagawa absolute encoder support on axes 0 to 3 and 4 axis of incremental encoder support on axes 4 to 7.
P881	P874	8 Axis of SSI absolute encoder support. No other absolute encoder types supported on any axes. Incremental encoder support still available on all axes.