TB079 (Rev1) - CPU Updates/Compatibility

Overview

This document describes the compatibility of CPUs and Drive cards, discusses upgrades, and lists the current revision of each programmable Integrated Circuit (IC) chip.

CPU7 Upgrades

Effort has been made to maintain compatibility of newer software to the older CPU7 boards. For certain cases, this has not been possible. CPU7P5 (long) cards revision 970603 or newer will work with the latest software. CPU7P3 (square) cards revision 961008 and newer will support all current software features if they are equipped with a 2101 DSP (see "CPU7 DSPs" section). CPU7s that do not meet these conditions may not support the newest software features or be upgraded to do so.

Some upgrades are possible on the CPU7 cards to cure problems that show up with certain machine configurations. A chart is provided below to help evaluate whether or not an upgrade is needed and to identify current chips. If a CPU7 card has a chip with a stick on label (Centroid programmed IC) that is not listed below, consider it outdated. Also note that CPU7 long cards with green solder mask between the gold fingers, such a revision 930611, were generally unreliable and should be replaced if problems are encountered.

CPU7 IC Name	Possible Problem	Solution
CPU706	Intermittent "CPU7 PIC Offline" in message window	Upgrade to CPU709
CPU707	May not work correctly with older CPU7s that have 12MHz Z80 clock	Upgrade to CPU709
CPU708	Does not support all Uniconsole keys	Upgrade to CPU709
CPU709	None	Current chip
ATCPIC 020114	None - for use with PLCIO2 only	Current chip used with PLCIO2
ENCDR7D 8/02/96	None	Latest chip for 961008 rev. CPU7
U7ENCDG 980121	None	Current chip
MEMCPU72 04-23-96	None	Latest chip for 961008 rev. CPU7
U7PCIF 05-10-93	None	Current chip
U7P5DSP 07-25-97	None	Current chip
U7DXINT 12-05-96	None	Current chip
U7P5Z180 07-25-97	None	Current chip
64180 HEXFILE 12-15-93	None	Latest chip for 961008 rev. CPU7
DSP HEXFILE 12-15-93	None	Latest chip for 961008 rev. CPU7
U7DXINT 12-05-96	CPU10 not seeing 6_{th} axis index	Use AX6INT on CPU10 ONLY

CPU7 DSPs

CPU7 cards are equipped with one of two different DSP chips, depending on the CPU7's age. The DSP is identified by "ADSP - 2105" or "ADSP - 2101" marked on the chip. The 2101 DSP is current. The 2105 equipped CPU7 cards will not support all the current software features. If the CNC7.HEX file is used with the 2105, the latest software release can be run - with a few limitations. Some features that will not be usable are listed below:

- 5th axis encoder input
- Digital PID filter
- Moves slaved to encoder input
- 4th axis pairing

The most notable result of these DSP differences is that rigid tapping and lathe operation will not be possible with the 2105. If the extra capabilities of the 2101 are needed, an upgrade to a newer CPU7 card must be made.

SERVO1 and QUADDRV1 Upgrades

SERVO1 and QUADDRV1 boards do not need to be updated for compatibility. If one of these drives is not working correctly, Centroid technicians will determine if a particular upgrade is applicable. Drives older than SERVO1 revision 950125 and QUADDRV1 revision 940817 may have to be upgraded to a newer revision rather than repaired. The following table shows the latest revisions of drive logic chips.

QUADDRV1 or SERVO1 IC Name	Modification from Previous Revision
OPTIC 990112	Double registered data and sync lines
CONT 990112	Removed over-current and over-temperature detection
OPCONT 980320	SYNCCHK 960403 logic moved into OPCONT
OPCONT 960508	OPTIC and CONT combined into one chip (Equivalent to current chip when used with SYNCCHK 960403)

CPU MODEL GUIDE

CPU9C5 This is the first board developed for the SERVO4. This board works only with the SERVO4 with a ISA mother board. The CPU9C5 has a design issue regarding the fiber optic communications and was prone to Drive Communications Error with fibers longer than 15 feet. This model was discontinued

CPU9C3 This is a CPU9C5 that works with PC104 motherboard and has the same design issues.

CPU9B This board corrected the fiber optic communications problem of the CPU9C. This board works with the SERVO4 drive only but can be modified for use with the SD drives with some factory work. Modified boards have a label over the board designator. The CPU9B fits into ISA mother boards only.

CPU9SD This is an ISA CPU for the SD series drives. This card does not work with the SERVO4. The Z80 clock speed is increased for 5 axis systems.

CPU7P5S This is the last revision of the ISA CPUs for SERVO drives for DC motors only. There are no

problems with this board and it is still available.

CPU10 This is the PCI slot CPU that combines the CPU7 and CPU9 boards to operate with SERVO1 DC Motors drives and SD / SERVO4. The installed HEX file determines that type of drive system. This card requires Linux. U4 must be reprogrammed with PCIENCS4 to be used with SERVO4 drives. The CPU10 added a 6th axis encoder for systems of 5 SD1 drives.

Document History

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