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Introduction

This document describes the differences between the MC68HC08BD24 (HC08BD24) and the MC68HC908BD48 (HC908BD48), and the requirements/considerations for converting code from the HC08BD24 to the HC908BD48.

Differences Between the Devices

The HC908BD48 is the FLASH version of the HC08BD24. In addition to all modules in the HC08BD24, the HC908BD48 has a universal serial bus module (USB) and a multi-master IIC interface module (MMIIC). **Table 1** shows the differences between the two parts.

Table 1. Differences Between the Devices

| | MC68HC08BD24 | MC68HC908BD48 |
|--------------------|--|--|
| RAM | 512 bytes RAM (\$80 – \$27F) | 1024 bytes RAM (\$80 – \$47F) |
| User memory | 24,576 bytes ROM (\$9C00 – \$FBFF) 512 bytes ROM (\$FC00 – \$FDFF) | 48,128 bytes FLASH (\$4000 – \$FBFF) |
| User vectors | 26 bytes ROM (\$FFE6 – \$FFFF) | 26 bytes FLASH (\$FFE6 – \$FFFF) |
| PTD0 and PTD1 pins | PTD0 pin – Port D bit 0 3.3 V I/O pin PTD1 pin – Port D bit 1 3.3 V I/O pin | PTD0 pin – Port D bit 0 3.3 V I/O pin or USB data D+ pin PTD1 pin – Port D bit 1 3.3 V I/O pin or USB data D– pin |

Table 1. Differences Between the Devices (Continued)

| | MC68HC08BD24 | MC68HC908BD48 |
|--------------------------------------|--|---|
| PTD5 and PTD6 pins | PTD5 pin – Port D bit 0 I/O pin PTD6 pin – Port D bit 1 I/O pin | PTD5 pin – Port D bit 0 I/O pin or MMIIC clock pin PTD6 pin – Port D bit 1 I/O pin or MMIIC data pin |
| USB | Not supported: | Supported |
| Registers from \$0029 through \$003F | Not used: Locations are reserved | USB related registers: \$0029 – UADR, \$002A – UINTR \$002B – UCR0, \$002C – USR \$002D – UCR2, \$002E – UIR1 \$002F – UCR1, \$0030 – UD0R0 \$0031 – UD0R1, \$0032 – UD0R2 \$0033 – UD0R3, \$0034 – UD0R4 \$0035 – UD0R5, \$0036 – UD0R6 \$0037 – UD0R7, \$0038 – UD1R0 \$0039 – UD1R1, \$003A – UD1R2 \$003B – UD1R3, \$003C – UD1R4 \$003D – UD1R5, \$003E – UD1R6 \$003F – UD1R7 |
| Bit 0 and bit 1 at \$0003 | Bit 0 – Port D Data bit 0 Bit 1 – Port D Data bit 1 | Bit 0 – Port D data bit 0 or USB I/O D+ Bit 1 – Port D data bit 1 or USB I/O D– |
| Bit 0 and bit 1 at \$0049 | Not used: Bit is reserved | USB related bits: Bit 0 – USBD+E Bit 1 – USBD–E |
| Vector at \$FFF8 and \$FFF9 | Not used: Locations are reserved | USB vector |
| MMIIC | Not supported | Supported |
| Bit 5 and bit 6 at \$0003 | Bit 5 – Port D Data bit 5 Bit 6 – Port D Data bit 6 | Bit 5 – Port D data bit 5 or MMIIC data Bit 6 – Port D data bit 6 or MMIIC clock |
| Registers from \$004A through \$004F | Not used: Locations are reserved | MMIIC related registers: \$004A – MIMCR, \$004B – MIMADR \$004C – MMCR, \$004D – MMSR \$004E – MMDTR, \$004F – MMDRR |
| Bit 5 and bit 6 At \$0049 | Not used: Bit is reserved | MMIIC related bits: Bit 5 – IICSLE Bit 6 – IICDATE |

Table 1. Differences Between the Devices (Continued)

| | MC68HC08BD24 | MC68HC908BD48 |
|--------------------------------|-------------------------------------|---|
| Vector at \$FFEA and \$FFEB | Not used: Locations are reserved | MMIIC vector |
| Registers at \$FE07 and \$FE08 | Not used: Locations are reserved | FLASH related registers: \$FE07 – FLCR \$FE08 – FLBPR |
| Monitor ROM | Used for testing only | Used for testing and FLASH programming/erasing |
| Packages | 42-pin SDIP 44-pin QFP | 28-pin PDIP 42-pin SDIP 44-pin QFP |

Code Conversion: HC08BD24 to HC908BD48

Due to the aforementioned differences, a few details must be considered in the user’s software when the HC08BD24 is replaced with the HC908BD48.

As **Table 1** shows, the HC908BD48 user memory size is much bigger than in the HC08BD24. However, the HC908BD48 does not have FLASH memory at locations from \$FC00 through \$DFFF. For the user’s code to work properly using the HC908BD48, make sure that the user’s code resides within FLASH memory.

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