



Release Notes

MC58xx0 version 2.4

Document last updated: 8/8/2008

Product names: MC58420, MC58320, MC58220,
MC58120, MC58110

Date of build: 8/05/2008

Device Checksum:

58110024	0xfd30995c
58120024	0xfce11d04
58220024	0xfcc5dea6
58320024	0xfcaaf406
58420024	0xfc918387

Compatible IO devices: MC50000IOAD8

Description:

The MC58xx0 are motion control processors for servo and stepper motors and provide one to four axes of motion. This document details bug fixes and changes for this release.

Known Bugs:

90177	Sending SetMotorCommand 0 immediately after InitializePhase may prevent motor from moving. To avoid this problem do not issue a SetMotorCommand after InitializePhase until the activity status register indicates that initialization is complete.
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Known Issues:

MC58x20 only: If the IO chip HostRdy signal (pin 8) is used for chip busy detection, the first instruction sent to the chipset after a device reset may be ignored or may produce a checksum error. It is recommended that in this configuration a NoOperation command be sent to the chipset as the first instruction after a power on or reset. If the *ReadStatus* operation is used to check the HostRdy state this problem does not occur.

The position loop integral contribution trace variable always traces as zero.

Changes/Fixes:

90179	Unexpected commanded position values when using external profile mode, particularly with small negative velocities. Trajectory position, velocity, and acceleration are computed internally to 48 bits, however only 32 bits are used for motor control or user-visible. This version uses more accurately rounded position values than previous versions.
90180	Commanded position incorrectly rounded when using a non-unity step to count ratio.

Incompatibilities with previous version:

Commanded positions produced by the external trajectory generator will be slightly different – in all cases they should be slightly more accurate than in previous versions.
Conversion of steps into actual position and vice versa will be slightly different – in all cases they should be slightly more accurate than in previous versions.

Version 2.3:

Incompatibilities with previous version: None (but see notes for Version 2.2)

Known Bugs:

90181	Commanded position wrong when using a non-unity step to count ratio and a negative actual position.
90182	Non-unity step to count ratio sometimes not applied to actual position after a commanded change in the ratio.

Known Issues:

MC58x20 only: If the IO chip HostRdy signal (pin 8) is used for chip busy detection, the first instruction sent to the chipset after a device reset may be ignored or may produce a checksum error. It is recommended that in this configuration a NoOperation command be sent to the chipset as the first instruction after a power on or reset. If the <i>ReadStatus</i> operation is used to check the HostRdy state this problem does not occur.
The position loop integral contribution trace variable always traces as zero.

Changes/Fixes:

90178	In the previous release, for axes configured for brushed DC motors, setting the sample time to certain multiples of 51.2 can cause the PWM hardware to remain inactive.
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Version 2.2:

Incompatibilities with previous version:

If the device is operated in dual encoder mode, the auxiliary axis encoder is now used for sinusoidal commutation. In previous releases, the main axis encoder was always used for sinusoidal commutation.

In dual encoder mode, configuration parameters pertaining to commutation, such as PhaseOffset, PhaseCounts, PhaseCorrectionMode, and SetSignalSense may require adjustment. These parameters are sent to the main axis, except for SetSignalSense, which is sent to the auxiliary encoder axis.

Changes/Fixes:

90169	In the previous release, if axes were disabled and then re-enabled, commutation rates could sometimes deviate slightly from 10 kHz. In this 2.2 release, 10 kHz commutation rates are ensured.
90175	In prior releases, in dual loop sinusoidal commutation was performed using the main axis encoder. In this 2.2 release, in dual encoder mode sinusoidal commutation is performed using the auxiliary axis encoder.

Version 2.1:

Known Issues:

MC58x20 only: If the IO chip HostRdy signal (pin 8) is used for chip busy detection, the first instruction sent to the chipset after a device reset may be ignored or may produce a checksum error. It is recommended that in this configuration a NoOperation command be sent to the chipset as the first instruction after a power on or reset. If the *ReadStatus* operation is used to check the HostRdy state this problem does not occur.

Incompatibilities with previous version:

If the CP bus is tied high (or left floating – which is the same) the default serial port baud was 9600 in 1.x and 2.0. It is now 57600.

Known Bugs:

90166	When the encoder source for P&D is set to loopback and the MotorOutput bit in the signal sense is active, the actual position goes in the opposite direction of the commanded position.
90168	MC58110 only: 3-phase PWMSign/Mag output mode not working correctly.

Changes/Fixes:

90167	When changing motor type from microstep 2-phase to pulse and direction the signal output becomes a high frequency square wave when profile is started and does not stop when profile is stopped. Fixed.
90170	Default serial port baud was 9600 instead of 57600 as documented for 2.0. Fixed.
90171	MultiUpdate was only affecting one axis. Fixed.

Version 2.0:**Known Issues:**

<p>If the IO chip HostRdy signal (pin 8) is used for chip busy detection, the first instruction sent to the chipset after a device reset may be ignored or may produce a checksum error. It is recommended that in this configuration a NoOperation command be sent to the chipset as the first instruction after a power on or reset. If the <i>ReadStatus</i> operation is used to check the HostRdy state this problem does not occur.</p>

Incompatibilities with previous version:

AxisOut	In version 1.x of Magellan, when the axis out register is set to SignalStatus the output sense of AxisOut was inverted to indicate the active LOW sense of the signal status register. This has been maintained when the SetAxisOutSource command is used, but when the new API command SetAxisOutMask is used the user determines the sense of the output.
Default CAN configuration	If the CP bus is tied high (or left floating – which is the same) the default CAN configuration on Magellan 1.x was 500K, NodeID=0. For Magellan 2.x it is 20K, NodeID=0.
Motor phasing	For 2 or 3 phase motor commutation the phase angle for v2.0 is retarded by 90 degrees in comparison to v1.x. For example, setting the phase angle to 90 degrees in v2.0 is equivalent to setting the phase angle to 0 in version 1.x. The same is true for Set/GetPhaseOffset. This in no way affects motor wiring or hall connections between versions. This is for compatibility with ION.
Chip response to the reset command	For compatibility with ION and future products, when the reset command is executed it now does not send the “Processor reset” error code in the response. Instead, it responds “No error” and sets the InstructionError to “Processor reset”. Following the reset the host can execute GetInstructionError to verify that the chip reset correctly and also to clear the instruction error register.

Known Bugs:

None

Changes/Fixes:

Command Changes

90165	Performing a SetMotorMode On with the motor type set to pulse and direction would cause the internal step position counter to be filled with an incorrect value. This problem would not result in any loss of steps or observable problems. Fixed.
90159	There was no output mode compatible with the AD1866. Fixed. SetOutputMode SPI_DAC_2s_Complement
90148	Following a successful hall-based phase initialization, GetCommutationMode did not return 0 (sinusoidal) even though that was the active commutation mode. Fixed.

Communication Changes

90163	When using parallel communication, a bad axis error would not be returned for invalid axis selection. Fixed.
90160	When using parallel communication, if a command is sent with an invalid axis value, if the host then attempts to read data it would receive data from the previous command. Fixed.
90155	In multi-drop serial mode the chip would not automatically re-sync each time it received the address byte of a new frame. Fixed.
90147	In CAN communication an invalid axis error code was returned in the high byte of the returned status word instead of in the low byte. Fixed.

Trajectory Generation Changes

90151	If the SetEncoderToStepRatio command was issued during a trapezoidal move with 1 count (or step) or less left to the destination position, the chip could stop responding. Fixed.
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PWM/DAC Signal Output Changes

90158	SPIEnable signal does not toggle after transmission of each data word. Fixed.
90153	SetSPIMode did not select the SPI data clocking scheme as documented. Fixed.

Step Signal Output Changes

	none
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Servo Filter Changes

90157	The biquad filter registers are not cleared when the motor mode is set to off. Fixed.
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Commutation Changes

	none
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Registers and Signals Changes

90162	The AxisOut1 or AxisOut2 signals could exhibit glitches. Fixed.
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Position Feedback Changes

90164	Selecting the parallel encoder as source does not store the first value read to the actual position. Fixed.
90152	MC58110 only. A position capture will store an incorrect value if encoder channel A has been inverted using SetSignalSense. Fixed.

Miscellaneous Changes

90149	Trace variable 29 (phase angle scaled) was stored as signed when it should have been unsigned. Fixed.
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