

Modicon M580 BME_{x58x0x0x} FIRMWARE HISTORY

The FW update procedure is in the unitypro help : Modicon M580 update procedure / Update procedure / Ethernet Communication Module Update procedure.

Version #	Date of Publication	Internal reference	Description
SV02.80	02/2019	PEP0477261R	LED ERR blinks in storm condition
		PEP0448055R	CPU Device DDT Network Health bit now returns to 1 when issue of Storm/Network disappears
		PEP0481942R	BME*58*0*0 CPUs do not lose anymore i/o scanning tick
		PEP0437710R	BME*58*0*0 CPUs - enable CIP requests when sender / receiver is CPU
		PEP0472830R PEP0475431R PEP0441086R PEP0433539R PEP0456402R	Improvement of cyber security protection.
		PEP0478160R	Prevent a CPU FW to be loaded in a BMXNOR module (destructive)
		PEP0423915R	New feature: force eRIO drops outputs to fallback state (like %S9 for local I/Os)
		PEP0423150R	Diagnostic Viewer improvement
		PEP0495030R	Improvement of the safe communication avoiding I/O fallbacks
		N.A.	Improvement of the safe communication avoiding I/O fallbacks on %SW128 usage
		N.A.	Avoid to have a possible Safe task Halt (%SW125=5AF3) following an Init safe
		N.A.	Improvement of the startup sequence if the HSBY link is not healthy (damaged, broken or unplugged...) : if CPU B is controlling the I/Os (Primary), then at startup, CPU A might take the Primary role with a NULL context instead of starting in Standby mode.

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	PEP0496873R	Improvement of the startup sequence with "auto start in run" and reset from the power supply, to avoid a possible 3 red leds managed exception.
	PEP0500049R	Correction of a network redundancy diagnostic issue (in the CPU DDDT) when the CPU is connected to a STB DIO loop.

Note: **SV 2.80 : Migration from UnityPro to Control Expert**

Version #	Date of Publication	Internal reference	Description
SV02.70	07/2018	PEP0300614R	New feature : manage time stamped events on user defined trigger (external sources such as power breaker...)
		PEP0337045R	Addition of 2 diagnostic messages in the primary diagnostic viewer concerning counterpart CPU : "becomes standby" & "no more standby"
		PEP0411281R	Improve SDCard driver robustness
		PEP0439440R	Enhance cybersecurity features regarding Run/Stop input and reservation mechanism management
		PEP0440866R	Enhance cybersecurity features regarding buffer overflow in TFTP service
		PEP0441146R	Enhance cybersecurity coding rules on instruction "STRNCPY"
		PEP0441227R	Enhance cybersecurity coding rules for Software Development Lifecycle
		PEP0447659R	Enhance cybersecurity regarding CPU memory robustness
		PEP0329819R	Enhance "READ_VAR" robustness vs multiple fast disconnection / reconnections of Ethernet cable on NOC module

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	PEP0434129R	Improve NTP service to fix the “RTC = 2085+” issue
	PEP0471161R	When using NTP service, the CPU now displays correct information in the %SW53
	PEP0434129R	When using NTP service, the CPU now always keeps RTC updated on power cycle
	PEP0432934R	Enhance robustness regarding FTP access to SD card (could lead to HALT)
	PEP0439586R	Enhance robustness regarding Modbus server on reception of partial request
	PEP0439147R	Enhance memory robustness when Magelis HMI configured by Vijeo Designer writes to unlocated variable
	PEP0428446R	Correct IP address assignment to a BMEAHIO812 after a PLC power cycle if one or both of the ETH ports on the CPU are disabled
	PEP0461343R PEP0460854R	Correct FDR synchronization on HSBY CPU Switch over : could lead to hotstandby synchronization status to “OFF”, PMESWT0100 not restarting after CPU Switch over

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Version #	Date of Publication	Internal reference	Description
SV02.60	05/2018	N.A.	Improvement: support of the reference BMEP582040S

Note: Firmware version 2.60 is only available for safety processors BMEP584040S.

Note: Downgrading the BMEP584040S can only be executed by Schneider Electric support services

NOTICE

Do not downgrade a BMEP584040S to the SV2.40
Failure to follow these instructions will result in equipment damage.

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Version #	Date of Publication	Internal reference	Description
SV02.50	04/2018	PEP0314683R	Correction of a problem related to frozen variables that might happened after a SFC initialization in seldom cases
		PEP0428256R	Internal Modbus server robustness enhancement against malformed Frame
		PEP0412883R	ECC activation (Error Correcting Code) – see notes
		PEP0422526R	Fix of i/o scan that didn't work due to a RST_ACQ
		PEP0431488R	Internal HTTP server robustness enhancement against malformed Frame
		PEP0419392R	Restore syslog function that was not available anymore since v2.30
		PEP0434189R	Increase of backup application speed
		N.A.	Update processor settings based on the latest manufacturer recommendations
		N.A.	Enrich the diag file information to ease and make more efficient problem resolution by R&D

NOTICE

Do not power off the CPU when upgrading the CPU to 2.50 or higher from a lower version (or the other way around).
Failure to follow these instructions can result in equipment damage.

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Error Correcting Code mechanism drastically improves the robustness of the CPU against memory bit flips (soft errors) during its lifetime. This feature allowing to reach robustness over quality standard might also have a consequence on the cycle time of the PLC. It is recommended to check if the application cycle time after upgrade is conform with application requirements.

Failure to do so may lead to application watchdog trigger. Please read the FAQ on the topic to get more information.

Version #	Date of Publication	Internal reference	Description
SV02.41	10/2017	N.A.	Improvement: support of the CCOTF (Configuration Changes On The Fly) function in S908 drops behind a 140CRA31908. The minimum requirements for this function are: <ul style="list-style-type: none"> - Unity Pro v12.0 Hot Fix or Unity Pro v13.1 or later (Unity Pro v13 does not support CCOTF on S908) - 140CRA31908 FW version 2.30 or higher - 140CRP93xxx FW version 2.10 or higher - 140CRA93xxx FW version 2.03 or higher - BME584040 or BMEP585040 or BME586040 FW version 2.41 or higher
		PEP0358607R	Improve robustness on power cycle when tasks cycle periods are close to 1ms
		PEP0423246R	Improve the robustness of cancelling a communication function block when used in a FAST task. Reminder: it is not recommended to use communication function block in FAST tasks.
		PEP0341973R	Improve robustness of the system when 2 breakpoints are used consecutively within the same ST section
		PEP0418125R	Evolution of "device DDT" mode behavior, so that the I/O power supply validity is evaluated before the logic (like in "topological" mode).
		PEP0391470R	Fixes the incorrect information displayed in the webpage concerning the DHCP feature: even if enabled, the webpage was displaying it disabled.
		PEP0314563R	Prevent the system to go to HALT when large number of communication function blocks are used (80 or more per cycle) and when the execution cycle duration is close to the configured period.
		PEP0358247R	Optimize the performances when %SW90 is used to expand the default number of communication requests possible per cycle
		PEP0427510R	Avoid a rare situation where the CPU might go to the NO CONF state upon power cycle in case of very large application (memory close to be full)

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		PEP0428228R	Robustness improvement of the communication system in case of heavy loads
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Note: **Firmware version 2.41 is available only for processors level 40 and above. The impact of performances introduced in v2.30 has been resolved and is back to normal.**

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Version #	Date of Publication	Internal reference	Description
SV02.30	04/2017	PEP0348778R	Improve the robustness of the redundant system to avoid a very seldom case where the RIO bumped on 1 cycle after a CPU switchover triggered by a complete loss of visibility the RIO network by the primary (both the 2 CPU ETH ports disconnected)
		PEP0348925R	Prevent any RIO drop disconnection in rare cases of a mis formed DHCP telegram
		PEP0333697R	Change the behavior of the NTP management in order to avoid the system time to shift one hour less when BMXNOR0200H is set as NTP client.
		PEP0337384R	Improve robustness on proprietary FC90 modbus server in CPU
		PEP0339111R	Implement a new algorithm against TCP sequence number vulnerability giving now unpredictable random TCP sequence numbers
		PEP0348361R	change the behavior of the SCHEDULE function block to be aligned with the user documentation : Sunday was assign to bit 7 in WEEK instead of 0
		PEP0350099R	Improve SYSLOG system where some events described in user manual were not recorded (Application and configuration upload / download)
		PEP0358247R	improve robustness of the internal communication system to avoid it being overloaded by too many requests that resulted into lower communication performances
		PEP0387751R	Improve robustness of the system against very seldom cases where specific DTM files loaded into the CPU lead to a controlled stop unexpectedly.
		UNITY00081595	Increase robustness of the system when sending communication FC90 requests via WRITE_CMD_MX that could lead to a controlled stop unexpectedly
		UNITY00083596	Increase the robustness of the web server (rack viewer part) to avoid, in very seldom case, to trigger a controlled stop of the CPU unexpectedly
		UNITY00084328	Increase the robustness of the redundant system related to Ethernet IP scanner & adapter services that might stop after intensive CPU swaps

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	UNITY00084413	Fix a seldom behavior in the firmware download processing that could lead to the following error message "Flash upgrade error: S_False"
	UNITY00084448	Fix a very seldom case of system controlled stop (managed exception state EC10) when downloading a new firmware in the CPU
	UNITY00084826	Fix a seldom issue that lead to a unexpected state in the module re-configuration after a hot swap due to high frequency of explicit communication EF activation (READ_VAR, WRITE_VAR...) – typically less than 50ms.

Note: Firmware version 2.30 is available only for processors level 40 and above, with a potential impact on performances under specific operating conditions (up to +30% of scan time measured) due to enhancements concerning cybersecurity in operating system. After updating the processor version from an existing application, check if this impact appears and study the potential consequences in the system.

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Version #	Date of Publication	Internal reference	Description
SV02.20	09/2016	N.A.	Fix a communication server issue when many communication EFs are started at the same time, could lead to error code 7.
		N.A.	Fix a communication EF operating mode issue in redundant configuration : CPU waits now until its IP address is correctly set after a CPU swap (HSBY) before executing communication EF. Wrong Ip address could previously be used by modbus EF during first Mast cycle after a swap that lead to communication errors.
		N.A.	Improvement: Enhance diagnostic for redundant system: %SW61.5 support to get access by program to the information of PLC A and PLC B
		N.A.	Fix a real time issue on Ethernet IP system when processing arpResolv request: task could be interrupted during up to 600ms, that could lead to a bump on CRA.
		N.A.	Fix a seldom issue that lead to a CPU stop (error code EC04) after around 20 000 swaps on redundant system. (robustness of tDiagMgrPoll system task).
		N.A.	Fix a seldom issue that lead to a CPU stop (error code EC04) after application swaps on redundant system. (robustness of tLLDP system task).
		N.A.	Improvement: Enhance diagnostic in case of unexpected system stop thank to a new file /usr/diag/crash.txt generated. It includes the complete VxWorks call stack of the faulty task.
		N.A.	Fix an issue on software upload when password activated.
		PEP0342179R	Fix a robustness issue that could lead to a controlled stop of the CPU after receiving PTP ethernet packets.
		PEP0343987R	Fix an issue on %S94 operating mode that caused the BMENOC falling in "No Conf" state.
		PEP0328060R	Improvement: Enhance application upload operating mode to block the upload when CPU is not reserved to increase the security.
		UNITY00079914	Fix an issue on SET_FILE_ATTRIBUTES EF that didn't change the file attributes successfully on M580.
		UNITY00080213	Fix a diagnostic issue on RIO DDT heartbeat (trigger too sensible)

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	UNITY00081354	Fix an issue on the redundant M580 CPU to make the redundant link more robust to avoid seldom cases of PLC B in "Wait" state after several power cuts
	UNITY00082078	Fix an issue regarding auto-negotiation feature of the wired HSBY high speed link.
	UNITY00082487	Fix an issue that leads to system stop (error code EC10) of redundant M580 CPU when performing operating modes on both %S94 and %S66
	UNITY00082337	Fix an issue that leads to a CPU stop (root cause was a watchdog overflow on EIP) when disconnecting the Ethernet link connected with many scanned devices
	UNITY00082350	Fix an issue that leads to a CPU stop (root cause was a watchdog overflow on EIP - %SW124=0x001F) when CPU alternative power cycles
	N.A.	Fix an issue on the SFP after restarting the system that could lead to have a HSBY Link Down.
	N.A.	Improvement of robustness on hardware watchdog by changing internal system timeout values of MAC2.

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Version #	Date of Publication	Internal reference	Description
SV02.13	09/2016	PEP0333578R	Fix the issue introduced with v2.12 where the CPU does not boot after power cycle

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Version #	Date of Publication	Internal reference	Description
SV02.12	04/2016	PEP0314608R	Improvement: change the management of closing TCP connection (to be aligned as M340)
		N.A.	Improvement: miscellaneous robustness improvements
		N.A.	Improvement: support BMENOC IO Scanning upgrade (from 1.8KW to 3.7 KW)
		N.A.	Improvement: support of the Redundant Power Supplies (BMXCPS4002) advanced diagnostic function blocks
		N.A.	Improvement: support of the Global Data Module (NGD)
		PEP0309455R	Fix the 10 years offset issue if time reference for NTP is coming from BMXNOR0200
		PEP0286728R	Fix the wrong display in millisecond of value coming from R_NTTPC() function.
		PEP0286728R	Fix the arithmetic error wrongly generated when using FFB R_N NTPC function block
		PEP0328302R	Fix the offset issue when M580 answering to Modbus FC02 and FC04 requests from Scada (same mapping than Quantum now)
		PRB 192406	(HSBY only) : Fix the wrong behavior of remote IO frozen if remaining HSBY CPU goes into HALT state
PEP0322001R	Fix the wrong behavior of the %S9 not working properly at first PLC cycle		

Note: Firmware version 2.12 is no more available and must not be used.

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Version #	Date of Publication	Internal reference	Description
SV02.10	01/2016	PEP0299575R	Fixed an alignment issue in IO Scanner when a sequence of specific manipulations is done related to adding / modifying and removing line upon several build
		PEP0287801R	Fixed potential loss of signature of an SD Card upon power cycle
		PEP0311101R	Improvement: animation enabled on function REF_TO_ANYBOOL when mapped on extracted bit
		UNITY00079055	Improvement of data_exch CIP address input parameter in order to avoid having to write it in the DFB at each cycle.
		UNITY00078119 UNITY00078306 UNITY00076741 UNITY00076742	Improvement of cybersecurity robustness against: <ul style="list-style-type: none"> - Periodic configuration change at each cycle using ETH_PORT_CTRL block (ex: enable / disable FTP) - FTP session still active when FTP disable using ETH_PORT_CTRL block - CPU syslog events recording improvement in case of FW update or CPU reboot
		UNITY00078670	Fixed EIP communication issues between M580 and M340 BMXNOC0401 in Ethernet / IP (it was ok for Modbus TCP)
		N.A.	Improvement: support of State RAM for BMEP584040
		N.A.	Improvement: support of Quantum Ethernet drops (140CRA31200) for BMEP584040
		N.A.	Improvement: support of some Quantum function blocks for BMEP584040
		N.A.	Improvement: support of Rack Viewer for BMEP584040
		N.A.	Improvement: All CPUs: support of Redundant Power Supplies BXCP54002 (status and function blocks)

Note: Firmware version 2.10 must not be used on M580 Hot Standby CPUs (BME H 58xxxx)

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Version #	Date of Publication	Internal reference	Description
SV02.01	07/2015	N.A.	Scanner CPU DDDT evolution to simplify user interface (new health bit and control bit per device...)
		N.A.	Numbering schema change: Device ID, Connection ID, Object ID, Compatibility to simplify user interface
		N.A.	ANYBOOL support for on line animation
		N.A.	Time stamping support for local variables of the CPU
		N.A.	Enhance cybersecurity features: Enable/Disable unused services, support EIP/DHCP/BOOTP services, Hardening Access Control (ACL), Disable FTP on Ethernet when in NOCONF mode, Event Logging
		N.A.	Device Integration: support of 'R' Ready devices
		N.A.	Support of CCOTF on Local IO
		PEP0293564R	Fix a potential issue where an undesirable output was one during the first PLC cycle after start-up
		PEP0291328R	When the CPU is HALTed, the DIO outputs keep the last values -> the fix is to stop the ioscanner to activate the fall back values
		PEP0281260R	No Ethernet IP connection (with drive Danfoss FC102)
		PEP0250301R	Enhance DIO management for class 1 CIP connections (CPU DIO connection internal timeouts)
		PEP0275023R	FTP password for firmware upload must be configurable
		PEP0280264R	DEVICE_CNX_CTRL bits management is not correct on M580 CPU Device DDT for STB
		PEP0250299R	M580 data Freshness bits management do not behave as described in the documentation
PEP0275021R	Enhance FTP robustness against too long login names		

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	PEP0275017R	Increase the reliability of the firmware integrity self-test
	PEP0261831R	Regression vs M340 : implement NOR0200 NTP Client feature to update the CPU RTC
	PEP0267189R	Enhance existing password protection mechanism to reserve PLC

Note: **Recommendation or Any specificity (ex: CoPro / CPU compatibility...)**

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SV01.13		N.A.	Unity loader being connected to a BMXEHCxxx via a CPU, the CPU may go in "NO CONF" state OR Module leds blinking (RUN, ERR, I/O, DL) OR "system stop" state (%SW124=EC00) during the upgrade of the EHC.
		N.A.	The webpage fails after a long period of time with the popup message : "communication timeout occurred, please check the connection"
		N.A.	During CNM Network discovery (Auto Topology using SNMP features) the CPU seems not being connected to the correct port
		N.A.	In M580 CPU web page, the module name is followed by "Pr"
		PEP0267431R	CPU goes in "system stop" state when an unexpected CIP frame targets the CPU (this issue only occurs on BMEP58x020 CPU versions)
		PEP0266012R	When connected indirectly to the CPU (e.g. through a NOC), the communication to the CPU fails while performing heavy actions (like storing actual values in init values)
		PEP0250302R	The Control bits of the DIO scanner stops working after a while
		PEP0250296R	CPU may go in "system stop" state after an On Line Modification with High communication traffic
		PEP0273207R	Cyber-security : impossible to disable the ports 2 and 3 of the CPU whereas the option is checked in unitypro (only concerns BMEP58x020 CPU versions)
		N.A.	Improves Ethernet backplane communication management for large configurations.

Note: Recommendation or Any specificity (ex: CoPro / CPU compatibility...)

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SV01.04	12/2014		Launch version