## *Modicon M580 BMEx58x0x0x* 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 |
|---|---|---|---|
| SV**02.60** | **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 |
|---|---|---|---|
| SV**02.50** | **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 scann 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 diagfile information to ease and make more efficient problem resolution by R&D |
| | | | fixes seldom "3 red leds" behaviour on rack reset (CPS button) |

## *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.**

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.**

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| Version # | Date of Publication | Internal reference | Description |
|---|---|---|---|
| SV**02.41** | **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:<br>- Unity Pro v12.0 Hot Fix or Unity Pro v13.1 or later (Unity Pro v13 does not support CCOTF on S908)<br>- 140CRA31908 FW version 2.30 or higher<br>- 140CRP93xxx FW version 2.10 or higher<br>- 140CRA93xxx FW version 2.03 or higher<br>- BMEx584040 or BMEP585040 or BMEx586040 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) |
| | | PEP0428228R | Robustness improvement of the communication system in case of heavy loads |

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 |
|---|---|---|---|
| SV**02.30** | **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 misformed 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 |
| | | UNITY00084413 | Fix a seldom behavior in the firmware download processing that could lead to the following error message "Flash upgrade error: S_False" |

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| | | 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 tp +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 |
|---|---|---|---|
| SV**02.20** | **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 callstack 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) |
| | | 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 |

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|---|---|---|---|---|
| | | | UNITY00082078 | Fix an issue regarding auto-negociation 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 |
|---|---|---|---|
| SV**02.13** | **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 |
|---|---|---|---|
| SV**02.12** | **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 millisec of value coming from R_NTPC() 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 behaviour of remote IO frozen if remaining HSBY CPU goes into HALT state |
| | | PEP0322001R | Fix the wrong behaviour 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 |
|---|---|---|---|
| SV**02.10** | **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: <br> - Periodic configuration change at each cycle using ETH_PORT_CTRL block (ex: enable / disable FTP) <br> - FTP session still active when FTP disable using  ETH_PORT_CTRL block <br> - 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 BXCPS4002 (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 |
|---|---|---|---|
| SV**02.01** | **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 startup |
| | | PEP0291328R | When the CPU is HALTed, the DIO outputs keep the last values -> the fix is to stop the ioscanner to activate the fallback 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 |
| | | 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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| Version # | Date of Publication | Internal reference | Description |
|---|---|---|---|
| SV**01.13** | | 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 occured, 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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| Version # | Date of Publication | Internal reference | Description |
|---|---|---|---|
| SV**01.04** | **12/2014** | | **Launch version** |