PCD6.M540 Summary of Firmware versions

The under summary presents a short description of all firmware versions which are set on PCD6.M540 at the production (official version and exceptionally some intermediate version $).
Concerning corrected / known bugs :
Only important bug are listed here. For other bugs, please refer to the file COMSWERR.XLS which contains more information about known bugs…

Version	PROM	Date	Description
V001	512 KB	3/1992	**Major modifications** - The SAIA S-BUS, level I - Expanded LAN2 functions **Known bugs :** - Transfer the RTC doesn't work with the instruction STXM (level I). - The instruction RCOB doesn't work correctly - Serious problem with indexing (SEI) - Problem with the RTC for years which don't have 53 weeks. - The instruction MOV (Digit) doesn't work correctly when the error flag is set. - Programming more than 7 PB and FB levels when XOB 10 was not present causes a crash.
V002	512 KB	6/1993	**Major modifications** - S-BUS level II (Full S-BUS protocol) up to 19200 Baud, with or without modems - Reduced and full S-BUS protocol for PCD data transfer (level I) up to 38400 Baud - Memory extension with PCD7.R3 up to 428 KB - Special user texts for date and time, registers - New instructions : TFR (transfer Data), CPBI (Call Program Bloc Indirect) - The instruction JPI (jump Indirect) has been extended to 8191 program lines **Corrections of known bugs :** In principle, all known bugs in the previous official version, excepts the following known bugs. **Known bugs / bugs found in this version :** - Serious problem with indexing (SEI) - The communication mode MD/SD is blocked on port 1 when connecting and disconnecting the debugger on PGU port 0. - Mode C : text output with include texts can cause a crash, only 3 levels of nexted texts may be used, the first

			character in a text should not be “$Lnnnn…“ - It is not possible to download a data block longer than 2048 elements - The instruction RCOB doesn’t work correctly - S-BUS mode break (SM0/SS0) doesn’t work on RS 485 interface - The TEST instruction doesn’t work correctly - If S-BUS PGU is configured to a port which doesnot exist, for example port 3 on and M120, then all communications are lost and it is no longer possible to come online with the PG3
V003	512 KB	1/1994	**Major modifications** - The memory extension did not keep the DB structure in the RAM on battery loss. This has been corrected in the mini project 'memory extension security'. - The S-BUS slave drivers have been modified to make them more tolerant to errors generated by NON-SAIA masters and errors caused by noise on the lines. These modifications have been made in the light of QS problems with S-BUS in several countries whereby a system crash occurs approximately once a week. **Corrections of known bugs :** - The nesting of texts up to 4 levels caused a crash of the System under certain circumstances. If a nested text is called directly from within a sub-text then this also caused a crash. - Disconnecting and reconnecting the debugger whilst using MD/SD mode on PORT 1 caused the MD/SD communications to be blocked. - It was not possible to download a DB greater than 2047 elements. - The STXT instruction transmitted invalid characters if the TEXT specified in the instruction didn't exist. Also, if two ports executed STXT instructions in parallel then the length of the text to be transmitted was occasionally corrupted which caused invalid characters to be transmitted on either of the ports. - The RCOB instruction didn't work correctly - The indirect text indicators $Rxxxx or @Rxxxx should Always be followed by four digits. If only three digits were Specified in the latest official versions then a crash would occur. - The instructions ALGI/ALGO did not work in the PCD6. - It was not possible to load a program into CPU 1 when CPU 0 held no program. - If all the memory extension was assigned to a single CPU and the memory extension security was used then this could cause a timeout on performing a restart cold from the debugger.

			Known bugs: - Accessing a test > 3999 (for example with STXTX) if the memory extension is not allocated or not present will cause a crash. - Swerr 164 Executing an RSB instruction at a STEP which doesn't exist causes an error. This is not detected by the Assembler. - The TEST instruction doesn't work correctly, it has never worked correctly. - Executing a WTIME instruction from CPU 1 can cause the Real Time Clock to be corrupted. (Frequency of error : 1 – 4 times per 24 hours) - Swerrs 124/125/177 The PID instruction is not working correctly for the following Cases. . Proportional factor < 15 and setpoint > than actual value, when the calculated result of the PID algorithm would be a multiple of 256 then the controlled output (Yn) is set to 0 for one scan. . Integral factor Fi=0 --> then ZS becomes maximum value then Fi is set > 0 --> integrator does not work. To make integrator work a cold start must be performed. - S-Bus communication can cause a problem for the following case: For one comm. port S-Bus is assigned or configured for 38.4kBd and a second port is assigned for S-Bus < 38.4kBd (e.g. 9600Bd). If on the second port an SRXM instruction to read 32 registers is executed then the master will perform retries because the timeout is too short. The intermediate solution is to double the timeout (2 * default value) in the SASI for the second S-Bus port. - Swerrs 179/202 If a SASI was performed in the background, for instance, with disconnecting/connecting the PG3 to the PCD, then if any communications instruction was being executed there could be a crash. - Swerr 184 Certain debugger commands which accessed ST/TR's greater than 999 didn't work. - Swerr 190 MOV instruction error. The MOV instruction would sometimes cause a crash. - Swerr 220 The SICL instruction didn't work correctly until a SASI had been made on the port concerned - Swerr 231 The DEFWPR caused a Halt "invalid opcode" on powerup - In a multiple CPU system, it was not possible to load a

			program into the own CPU over the S-BUS port if the CPU number was 1 - 6. - All four ports on an M260 are put into RS485 active state at startup. - If the program length was greater than 64 Klines or the text length was greater than 256 Kbytes then there would always be a checksum error when the Write Protect was set or the program was loaded into EPROM. - The timers decremented too fast after an assignation at 38.4 Kbd.
V004	512 KB	4/1995	**Major modifications** - Password - Modem+ - New indirect instructions : STXMI / SRXMI, TFRI - New S-BUS function : SRXM to read the system info of a slave, new XOB 17, 18, 19. - Modifications and corrections to the TEST instruction - File load modifications: This has been implemented under S-BUS only. It is now possible to choose whether to clear the outputs during the download or to make a RUN command directly after the download. - The startup routine has been completely rewritten so that the LED's now flash in a new sequence. This routine has new features for extra security. **Corrections of known bugs :** In principe, all known bugs in the previous official version, excepts the following known bugs. **Known bugs :** - Swerr 10 The TEST 100 instruction doesn't work correctly when using a PCD6.M1/2 before version 'C'. - Swerr 11 Spurious interrupts when using more than one processor which could cause a crash. - Swerrs 12/13/14 The user program name of CPU 0 was corrupted when using more than one processor and making a restart cold. - Swerr 15 The error "CPU SYNCH ERROR" occurred on CPU's 1 to 6 occasionally after a restart cold. - Swerr 16 The S-BUS Gateway didn't work correctly on CPU's 1 - 6 if a restart cold 1 - 6 was made. - Swerr 17 When using S-Bus PGU, the CPUx does not go in Stop after a Restart Cold/Warm x command if communication is active on an other CPU. - Swerr 18

			On PCD6.M220/M260 port RS-485 are active after startup. - Swerr 19 On multi-CPU's system the CPU, occasionally after a restart cold the CPU's detect an HW error. - Swerr 21 On PCD6, Sbus PGU PLM assignation cause trouble on CPUs without a PGU port assignation. On this CPUs the Port 3 does not work properly - Swerrs 124/125/177 Problems with the PID instruction. - Swerr 126 SCOB instruction doesn't work correctly. - Swerr 130 When in trace in GRAFTEC, if a condition is TRUE in the Transition then the transition is active, but the next step has already been executed. - Swerr 218 The error flag problem with the SASI instruction, this includes the whole concept of the error flag. - Swerr 230 Problem with MD/SD mode when transmitting the RTC. - Swerrs 234/235 The break length definition doesn't work correctly with SM0 Mode - Swerr 227 Problem with password when using F-SBUS Gateway
V$41	512 KB	02/1997	This FW version is based on V004 for the PCD6.M540 with some minor modifications which are listed below. The policy of SAIA is not to put any new features in the M540 as there is very little place left in the EPROMS. However, there is enough reserve to carry out essential maintenance which is the objective of this version. **DIFFERENCES BETWEEN V$41 and V004** - Swerr 226 This SWER concerns new features for downloading and Configuring S-BUS. - Swerr 232 The DTR signal is no longer reset after performing a SASI "MODE:OFF" or upon execution of a new SASI. - Swerrs 245/264/278/295 If a PCD had been powered up without any SBUS Configuration and then a user program EPROM was equipped containing a valid SBUS configuration, then it would not be detected. This error has now been corrected and works in the following way : • If a station number has been initialised in the PCD system RAM before the user program EPROM is equipped then this number is kept. • If there was no station number initialised in the PCD system RAM before the user program EPROM is equipped then the station number read from the user program EPROM. • If the battery fails during power-down then the S-BUS header is reinitialised to the contents of the user program

			EPROM.