



Below is a history of firmware revisions for the IPm firmware. Please note that Sixnet only supports the latest version. We highly recommend that you upgrade to the latest version whenever it is convenient to do so.

Version 4.2.1007 (Release Date: 12-March-2010)

New features:

- Increase triggers supported to 512.

Bug Fixes:

- Fix resetting of the system communications port. #3870
- Fix Datalogging log rate to nvram. #4648
- Fix range checking in stbus for floats and longs. #3996
- Fix ISaGRAF trigger function block. #1007
- DNP3 Event Recording/Backfill issue #4332
- DNP3 Configuration added for Initial Unsolicited Message. #4300

Version 4.2.1006 (Release Date: 12-March-2010)

New features:

- Support for Sixnet Built-in IPm Redundancy
- SaGRAF Hot Restart Feature
- Sxdatalog improvements
 - New support for ftp and sftp based client transfers
 - More responsive, faster

Bug fixes:

- Bug 245: Ring switch monitoring in IPm not always reporting correct port state.

Version 4.2.1005 (Release Date: 26-June-2009)

New features:

- New alarming feature allowing I/O points to be monitored:
- Set a discrete I/O point when an alarm condition occurs.
- Send a trigger when an alarm condition occurs.
- Support for the IPm2m 113 with 32MB NAND/32MB SDRAM, 12 DI, 4 DO, and 8 AI.
- Support for the IPm2m 213 with 32MB NAND/32MB SDRAM, 12 DI, 4 DO, 8 AI, and 2 AO

Version 4.2.1003 (Release Date: 10-Feb-2009)

Major new features:

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- Cycle time for special features is now configurable; the SIXNET I/O Tool Kit will allow values from 20ms to 5 seconds.

Bug fixes and improvements:

- Recognizes TCP/IP timeout set by I/O Tool Kit.
- I/O transfer improvement when both Modbus and SIXNET protocols used
- Fix commloss/heartbeat detection when using TCP/IP threads
- Datalogging to multiple datalog files using same trigger fails
- Fix PUTD/GETD commands when talking to EtherTRAK-2
- Fix TCP/IP reconnect for sxether_client and sxmbeth_client after doing a soft reset

Version 4.2.1002 (Release Date: 12-Feb-2008)

Major new features:

- Shutdown -h and halt will now halt the IPm instead of rebooting.

Bug fixes and improvements:

- Slow recovery IO Transfer fix for TCP I/O transfers.
- Word order fix for Modbus TCP floating point transfers when using wait for reply mode.

Version 4.2.1001 (Release Date: 25-Oct-2007)

Major new features:

- None (maintenance release)
Bug fixes and improvements:
 - Fix for file copy issue.

Version 4.2.1000 (Release Date: 18-Oct-2007)

Major new features:

- Enhanced MODBUS communication over radio modems.

Bug fixes and improvements:

- Includes libsxiodb.so.1.3.0 library - fixes the tag database initialization problem.
- STBUS Counter Module resetting of 32bit Counter (ST-DI-CNT-08U).

Note: The Toolkit reports this new version as "unreleased" which is not the case and that issue will be addressed in a future Toolkit release.

Version 4.2 (Release Date: 24-Aug-2007)

Major new features:

- Support for Modbus commands 5 & 6
Bug fixes and improvements:
 - Fix for IO Transfer communications after 28 days
Version 3.9 (Release Date: 4-April-2007)
Major new features:
 - Added support for "wait for reply" Ethernet I/O Transfers to other devices.

Bug fixes and improvements:

- I/O Transfers "Station status" bits could go on and offline in ST-IPM-6350 and ET-GT-ST-3 models.
- I/O database calls by tag name in user C programming would not always function properly.

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Version 3.8 (Release Date: 10-January-2007)

Open source: (GPL and others)

- U-Boot modified 1.1.0 (same as 1.9)
- Linux kernel: modified 2.4.18
- Busybox: modified 0.60.3 (same as v1.1)

Major new features:

- PPP "on demand" connection for client PPP connections
- Support for client transfers using UDP or TCP using PPP or Ethernet interfaces
- I/O transfers supported using UDP or TCP using PPP or Ethernet interfaces
- Support for the Mini-IPm Plus: VT-MIPM-245 and VT-MIPM-135

Bug fixes and improvements:

- An ISaGRAF program loaded into an IPm station using the "Online changes" method will now load faster
- User application programs that access an IPm station's I/O database (IODB) can now be part of the "iowriter" group to enhance security.

Note: Version 3.7 was skipped.

Version 3.6 (Release Date: 20-October-2006)

Open source: (GPL and others)

- U-Boot modified 1.1.0 (same as 1.9)
- Linux kernel: modified 2.4.18
- Busybox: modified 0.60.3 (same as v1.1)

Major new features:

- None (maintenance release)

Bug fixes:

- I/O that was set to be retained through a power loss was not always being retained.
- I/O Transfers using SIXNET Universal protocol and reading more than 61 floats from a remote number 128 or higher may not work properly.
- The registers in Module Status modules and Station Status modules would drop to zero if the command to read them was requesting more than 7 registers.
- Modbus ASCII I/O Transfer messages contained lowercase ASCII characters, which some older third party hardware was not able to recognize.
- I/O Transfer messages using SIXNET protocol could be truncated for a brief time when transmitted under certain offline-to-online conditions.
- The timestamp in some datalog records could appear incorrect when using the sync to clock feature.
- The ISaGRAF debugger and other SIXNET communications (such as the Test I/O window) could not be used at same time unless the debugger was launched first.
- Modbus RTU master communication at 1200 baud did not always work properly.

Note: Version 3.5 was skipped.

Version 3.4 (Release Date: 12-July-2006)

Open source: (GPL and others)

- U-Boot modified 1.1.0 (same as 1.9)
- Linux kernel: modified 2.4.18
- Busybox: modified 0.60.3 (same as v1.1)

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Major new features:

- I/O Transfers have been improved for better efficiency and error handling
- Support for movable Modbus boundaries
- Support for new shared library for libsxiodb (iodb library)

Bug fixes:

- Issue with reading Modbus discrete inputs at 1200 baud or lower

Note: Version 3.2 and 3.3 were skipped.

Version 3.1 (Release Date: 08-March-2006)

Open source: (GPL and others)

- U-Boot modified 1.1.0 (same as 1.9)
- Linux kernel: modified 2.4.18
- Busybox: modified 0.60.3 (same as v1.1)

Major new features:

- Support for a new type of Flash memory found in newer IPm controllers and RTUs. This release is also 100% compatible with all existing IPm units.

Bug fixes:

- None

Version 3.0 (Release Date: 12/14/2005)

Open source: (GPL and others)

- U-Boot modified 1.1.0 (same as 1.9)
- Linux kernel: modified 2.4.18
- Busybox: modified 0.60.3 (same as v1.1)

Major new features:

- Datalogging to Flash memory option now available
- Ethernet I/O Transfers enhanced to support Ethernet to serial IOMUX connection

Bug fixes:

- Too many ISaGRAF retained internal variables may affect ISaGRAF performance
- UART glitch on Serial Port A or C may affect IPm communication
- Stray temporary files may affect ISaGRAF program loading
- VT-UIPM-431 and -441 discrete inputs may not function properly w/out counters enabled
- ST-DI-024-32D configuration issue - may miss some I/O unless on byte boundary
- May not be able to configure serial port B after forced recovery

Note: Version 2.8 and 2.9 were skipped.

Version 2.7 (Release Date: 06/16/2005)

Open source: (GPL and others)

- U-Boot modified 1.1.0 (same as 1.9)
- Linux kernel: modified 2.4.18
- Busybox: modified 0.60.3 (same as v1.1)

Major new features:

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- Micro-IPm support
- Major communications work for improved performance and reliability
- Maximum number of datalog files increased from 30 to 50

Bug fixes:

- Ethernet I/O transfers reliability
- Datalogging freezes under certain circumstances
- Too many datalog files not detected
- Scale-to-float fails above AX/AY 4095
- Large Ethernet Modbus transfers may fail
- Online bit fails with triggered Ethernet transfers
- Port B DTR stays low after power cycle
- Port configuration not read from configuration file
- Online bits stick with 9 port ring switch

Note: Version 2.4 through 2.6 were skipped.

Version 2.3 (Release Date: 03/15/2005)

Open source: (GPL and others)

- U-Boot modified 1.1.0 (same as 1.9)
- Linux kernel: modified 2.4.18
- Busybox: modified 0.60.3 (same as v1.1)

Major new features:

- Ring switch monitoring
- Broadcast storm protection
- Performance enhancements for the Mini-IPm
- General cleanup/speedup of TCP/IP actions (I/O Transfers)

Bug fixes:

- Serial port action table may freeze
- C++ libraries not found error
- Serial I/O transfers may stop after about 49 days
- Added broadcast storm protection, so doesn't interfere with ST-Bus
- Client transfers may not recover from interrupted pause
- TCP/IP I/O transfers and Modbus server may fail (until reset) on TCP/IP transmit errors
- Sxpeerlink reloads configuration file unnecessarily

Note: Version 1.10 through 2.2 were skipped.

Version 1.9 (Release Date: 07/06/2004)

Open source: (GPL and others)

- U-Boot modified 1.1.0
- Linux kernel: modified 2.4.18
- Busybox: modified 0.60.3 (same as v1.1)

Major new features:

- Status LED under user control (for redundant controller information)
- ST-MIX12884 recognized
- Mini-IPm support:
 - a. U-Boot supports new FPGA LED register initialization.
 - b. kernel serial device protect fpga LED selections
 - c. stbus.o and sxmanager support Mini-IPm modules
 - d. /etc/onetime changes some configuration files for Mini-IPm

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Bug fixes:

- Errant ST-INS thermocouple readings in warm environment
- Nand fstab references mtdblock4 when no SRAM
- Watchdog disable not cleared on new configuration load
- EEPROM reads return incorrect data
- SXMODEM block DCD does not work with 'Connect' command
- SXMODEM block interferes with 'Load All'
- Modbus/TCP I/O Transfers stop running if more than 61 floats moved
- Modbus/TCP recovery causes errant I/O values
- Can't load to an IPm when there is Modbus/TCP communication to it
- TCP or UDP action (peer move) fails if local and remote same station number

Version 1.8 (Release Date: 03/18/2004)

Open source: (GPL and others)

- U-Boot modified 0.4.8 (same as v1.7)
- Linux kernel: modified 2.4.18 (same as v1.7)
- Busybox: modified 0.60.3 (same as v1.1)

Major new features:

- sxfmstram is now part of the firmware. This utility protects against the NVRAM getting corrupted and not properly mounting. The utility will identify the corrupted NVRAM, erase it, and reset the station.

Bug fixes:

- Triggered client transfers affect Sixlog
- Errant I/O when doing serial modbus actions
- Ethernet & Block I/O transfers fail
- TCP I/O Transfers fail when a station becomes offline
- Errant I/O appears when doing TCP/UDP Modbus actions
- Modbus TCP Replies to Longs/Floats being ignored
- Missing C++ libraries restored

Version 1.7 (Release Date: 01/05/2004)

Open source: (GPL and others)

- U-Boot modified 0.4.8
- Linux kernel: modified 2.4.18
- Busybox: modified 0.60.3 (same as v1.1)
- Boa: Removed from product

Major new features:

- Updated 'adduser' and 'passwd' to be more flexible.
- New absolute timer (was 10 millisecond resolution, now microsecond resolution is available)
- Support for Ethernet master communications to multiple stations, with identical station numbers.

Bug fixes:

- SETD/CLRD cause communication failures
- Commloss fails when DO0 is being written
- Serial half-duplex Modbus communications failing
- Serial half-duplex Sixnet communications failing
- Ethernet actions / Block Move pause after setting clock

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Version 1.6 (Release Date: 11/03/2003)

Open source: (GPL and others)

- U-Boot modified 0.4.8
- Linux kernel: modified 2.4.18
- Busybox: modified 0.60.3 (same as v1.1)
- Boa: unmodified 0.94.12 (same as v1.1)

Major new features:

- Support for the new double density SixTRAK I/O modules
- New Firmware upgrade system
- Remote firmware updates can be done via TCP/IP (no need for direct serial connection)
- Updates can now be done across subnets
- Bootloader is now field upgradeable (PPCBoot to U-Boot and U-Boot to U-Boot)
- Updated PPP support (serial port only - Null-Modem and Telephone Modem)

Bug fixes:

- sxetherpeer does not return the firmware version
- Records not logged at the proper time interval
- Gateways (Routes) not being set in the IPm
- Serial ports transmit constantly (block incoming messages)
- Modbus (slave) floats and longs not working
- RS485 and half-duplex communications failing
- ST-AI-20M-16H Only even or odd channels scanned
- Sixlog fails to communicate/log records
- Sixlog logs more than one record on trigger event
- MODBUS/TCP Slave communications hang station
- Cannot read I/O via web page
- MODBUS/TCP Slave cannot write higher registers
- RTS not asserted with hardware handshaking
- SIXNET Retained I/O failing to restore values
- Updated tag file not being processed
- Soft reset not behaving as expected
- Station resets after approximately 30 seconds
- High processor load when no special features file
- Master communications fail with VersaMUX / IOMUX
- PPCBoot/U-Boot all before U-Boot 0.4.8 for v1.6 U-Boot JFFS2 errors
- ASCII Modbus communications failing
- Watchdog monitor does not work with Modbus/TCP
- Floating point values not displayed correctly with web interface (showio)

Version 1.5 (Release Date: 07/03/2003)

Open source: (GPL and others)

- PPCBoot: modified 1.2.1 or U-Boot modified 0.3.1
- Linux kernel: modified 2.4.18
- Busybox: modified 0.60.3 (same as v1.1)
- Boa: unmodified 0.94.12 (same as v1.1)

Major new features:

- More configurable/flexible system for user startup and shutdown scripts
- Long and float outputs now frozen when the watchdog is tripped.
- Added 'su' (to allow for the toolkit's new file management features).
- Added 'mkimage' (to allow later addition to Tool Kit of image loads without using serial port)

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- Added SNMP support (v1, v2, & v3).
- Added Manual Control Heartbeat/Comm Loss feature.
- More efficient/robust slave UDP/TCP MODBUS communications
- New and improved TCP/IP based peer I/O.
- Faster TCP/IP communications
- Added OpenMODBUS master support (both TCP and UDP)
- Added SIXNET TCP master support
- Added block I/O copy feature

Bug fixes:

- Output registers do not freeze (heartbeat)
- ISaGRAF AVERAGE function block produces erroneous averages
- Watchdog remains tripped after being disabled
- Concatenated UDP/TCP MODBUS messages fail
- Actions (I/O Transfers) fail (both stop and errant I/O)
- DHCP Status reporting incorrect information
- DHCP will not acquire a lease
- Half duplex RD LED

Version 1.4 (Release Date: 4/03/03)

Open source: (GPL and others)

- PPCBoot: modified 1.2.1
- Linux kernel: modified 2.4.18
- Busybox: modified 0.60.3 (same as v1.1)
- Boa: unmodified 0.94.12 (same as v1.1)

Major new features:

- Libraries and executables updated.
- Bug fixes:
 - Reading Sixlog records from station is slow.
 - IPm not responding to valid IOMap communication.
 - Station fails to communicate after softreset.
 - SIXNET (Universal Driver) actions (I/O Transfers) fail to start.
 - Heartbeat does not work properly.
 - Inconsistent behavior with retained I/O and heartbeat.
 - Slow /nvram writes.
 - Slow ST-AI-INS and ST-AI-RTC updates.
 - Half-duplex Receive LED blink failure.
 - I/O does not zero out on softreset.
 - Difficulties communicating with MODBUS RTU.

Version 1.3 (Release Date: 2/25/03)

Open source: (GPL and others)

- PPCBoot: modified 1.2.1
- Linux kernel: modified 2.4.18
- Busybox: modified 0.60.3 (same as v1.1)
- Boa: unmodified 0.94.12 (same as v1.1)

Major new features:

- ISaGRAF SxLaunch function block
- More robust/efficient serial communications
- LOW_LATENCY flag support in serial drivers

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- IP security (Netfilter/IPTables)
- PPP support
- More complete set of IO DB function calls (includes tag parameters)

Bug fixes:

- /proc not mounted if /nvram mount fails
- ISaGRAF and Sixlog Ethernet replies sent to wrong address / port.
- MODBUS ASCII actions (I/O Transfers) read/write garbage
- Fast Ethernet uses wrong MAC address
- UDR VERS command reports incorrect version
- SxModem block not handling numerical responses properly
- Passthru not forwarding reply messages
- action.6tl file not created when manually deleted
- SxModem does not communicate when protocol is not set to USER.
- IPm sends duplicate records when doing client transfers.
- Client transfers are not using fixed address format.
- Invalid I/O requests (slave) not being NAK'd
- Actions (I/O Transfers) not communicating when src & dest addresses are 2-bytes.
- DHCP does not retry when it fails to obtain a lease at boot.
- Incorrect version of libdl contained in /lib.
- Occasional bad values from Sixtrak modules.
- Master MODBUS does not recognize word order changes.
- File system failure causes continual resets
- Large filenames crash communication clients

Version 1.2 (Release Date:11/25/02)

Open source: (GPL and others)

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