ASIC/2 Firmware Release Note

APPLIES TO ASIC/2-7540, ASIC/2-8540
LAST REVISED 2007-03-26

ASIC/2-7540 FW754a2.1 (2007-03-23)
ASIC/2-8540 FW854a2.1 (2007-03-26)

- Adds Decimal Fraction value to Function Float-to-Integer calculation

WHAT HAS CHANGED

By customer request we have added the decimal fraction value to the Function object, 32-bit floating point to integer conversion. The Decimal Fraction is displayed in units of 0.0001.

STEPS TO COMPLETE UPGRADE

Download and update FW754a2.1 (or FW854a2.1) from the integrator center, and update the controller using FlashDev. Update to the latest asic2.mdb file and add the Decimal Fraction parameter to the Function object Float-to-Integer screen.

ASIC/2-7540 FW754a2.0 (2007-02-08)
ASIC/2-8540 FW854a2.0 (2007-02-08)

- Fixes an intermittent issue of controller reset associated with system to local bus pass-thru.
- Updates ASIC/2-7540 Power-up Health Test sequence of lights.
- Fixes calculation overflow for PWM, Modulated, and Tristate Outputs.
- Boiler OAT Reset now works for negative Outside Air Temperatures.
- Fixes DAK Parameter 2_Byte download to Logic object.
- Adds 7540 USB/Ethernet support for USB200M Version 2.
  USB Ethernet Device = 1. Hawking HUF11 & HUF20, LinkSYS USB100M
  USB Ethernet Device = 2. LinkSYS USB200M Version 2

Reset Bug Fix

WHAT HAS CHANGED

- A subtle bug has been fixed which caused the controller to occasionally reset when using both system to local bus pass-thru and Remote Points.

Several customers reported problems that were traced back to the controller resetting when there was a lot of communication traffic. The controller would spontaneously reset, zeroing data, turning lights and equipment off until the sequence restarted. The reset was triggered by the presence of response messages being passed back from the local bus to the system bus and remote point or other traffic on the system bus. It has been present in all versions of ASIC/2-7540 and ASIC/2-8540 controllers.

Note: If you are doing pass-thru from system to local bus we firmly recommend upgrading to FW754a2.0 or FW854a2.0 or later.

STEPS TO COMPLETE UPGRADE

Download and update FW754a2.0 (or FW854a2.0) from the integrator center, and update the controller using FlashDev.

If you are upgrading from FW754a1.5 (or FW854a1.5) or later you do not need to reload the application files. If you are updating earlier firmware you must reload the application file after upgrade.

ASIC/2-8540 FW854a1.8 (2006-10-20)

- Only Updates ASIC/2-8540 Firmware to match the production ETH-8540 Ethernet Adapter.

STEPS TO COMPLETE UPGRADE

Download and update FW854a1.8 or later from the integrator center, and update the controller using FlashDev.

See Technical Note 33, ASIC/2-8540 Ethernet Adapter for further information.

ASIC/2-7540 FW754a1.7 (2006-09-05)
ASIC/2-8540 FW854a1.7 (2006-09-05)

- Fixes Notify Log rollover problem that self posted twice to instance 0.
- Fixes minor bug in Alarm object for COS/Fault which always used ALR Attr-11 Trigger Attribute - Hi/Lo Alarm, rather than ALR Attr-13 Trigger Attribute - COS/Fault
- ASIC/2-7540 adds periodic reset of USB port if no communication.
- ASIC/2-8540 adds support for ETH-8540 Ethernet Adapter which uses the IP Setup parameters from System Object and adds ETH-8540 Enable and Status. See Technical Note TN-35, ASIC/2-8540 Ethernet Adapter for details.

Note: The ETH-8540 is in prototype and not yet available.

STEPS TO COMPLETE UPGRADE

Download and update FW754a1.7 (or FW854a1.7) from the integrator center, and update the controller using FlashDev.

If you are upgrading from FW754a1.5 (or FW854a1.5) or later you do not need to reload the application files. If you are updating earlier firmware you must reload the application file after upgrade.

ASIC/2-7540 FW754a1.6 (06/09/2006)
ASIC/2-8540 FW854a1.6 (06/12/2006)

- Fixes a problem with Remote Point Originate that caused occasional output overrides.

Remote Point Bug Fix

WHAT HAS CHANGED

- A subtle bug has been fixed that affects controllers that are using originate Remote Points.

When a large number of Remote Points are originating from an ASIC/2-7540 or ASIC/2-8540 controller, unexpected Binary Output overrides can occasionally occur. Only one customer has reported this behavior. This customer was using up to 60 Remote Points. It was usually OUT-01 that was overridden, but occasionally OUT-00. These overrides could occur in firmware versions 1.5 and earlier, and they sometimes correct themselves after a few minutes. Upgrading the firmware to version 1.6 fixes this problem. We have not identified any other side-effects caused by this bug.

ASIC/2-7540 FW754a1.5 (05/02/2006)
ASIC/2-8540 FW854a1.5 (05/02/2006)

- Daylight Savings in the Clock object is upgraded to include new default Daylight Savings Dates and to add a new Custom Date feature.
- Improves the operation of the USB-Ethernet connection by correcting the response to network Address Resolution Protocol messages.
- Improves operation of the Modbus Master object so that a message is sent when the gate goes true. It also blocks pass-thru of Group or Global messages.

Special note: Clock object size has changed, so you must reload your application after upgrading the firmware.

Daylight Savings Upgrade

WHAT HAS CHANGED

- Daylight savings time begin and end dates for USA have been changed by legislation, this firmware incorporates the new begin/end dates.
- Firmware provides new variables to store non-USA daylight savings begin/end dates

STEPS TO COMPLETE UPGRADE

 Download and update Expert, ASIC2.mdb, the a2-clk.PVS, and a2-clk.TCL files
The updated files are available from the ASIC/2-7540 page in the integrator center

REFERENCES

Technical Note #33 (TN-033-Daylight Savings). Updated Object 12-Clock definition.

Starting in the year 2007 the dates for the beginning and end of daylight savings in the United States have changed: Spring Forward on the 2nd Sunday March 2:00 AM and Fall Back on the First Sunday November 2:00 AM. With FW754a15 in the ASIC/2-7540 (and FW854a15 in the ASIC/2-8540) the controller will automatically start using the new dates.

We have also added the ability to select custom start and end dates by setting DLS Date Enable to yes. For instance, in the European Union daylight savings starts the Last Sunday March and ends the Last Sunday October. In the Southern Hemisphere the seasons are reversed so, for example, daylight savings can start the Last Sunday October and can end the Last Sunday March. daylight savings adjustment is always done at 2:00 AM (02:00 hrs) on the indicated day.

To accommodate these changes we have added new attributes to the Clock Object. Consequently it is necessary to save the configuration before, and reload the configuration after upgrading the controller firmware.

***Note:** The updated time will be broadcast on the system bus at the next regular broadcast interval after the time has been adjusted.*

Improved USB Ethernet

WHAT HAS CHANGED

- Significant improvements were made to overall USB performance

REFERENCES

Technical Note #31 (TN-031-USB Ethernet-7540)

The ASIC/2-7540 USB Ethernet UDP/IP feature was first introduced with FW754A1.3. In Fw754a1.5 the operation of the UDP/IP Ethernet connection has been made much faster. You may make a UDP/IP Ethernet connection through the HUF 2 Ethernet adapter with ASI Expert, or the ASI LinkOPC server. The configuration parameters for the UDP/IP Interface are stored in the System object.

Modbus Master Operation

WHAT HAS CHANGED

- Adds Modbus Master communication on the local bus
- Can serve as Modbus RTU master

STEPS TO COMPLETE UPGRADE

 Download and update Expert, ASIC2.mdb, a2-sys.pvs, a2_sys.tcl, a2-mbm.pvs, and a2-mbm.tcl files from the ASIC/2-7540 page in the integrator center. Copy Symbol files Modbus Master.sym and Modbus Master.bmp.

REFERENCES

Object 39, Modbus Master definition

Modbus Communication on the Local Bus has been added to the ASIC/2-7540 and ASIC/2-8540 controller. It can serve as a Modbus RTU master device on the local bus. The Modbus Master object is used to read and write registers in a Modbus slave device on the local bus of the ASIC/2 controller. A Modbus Enable flag in the system object allows the Modbus object exclusive use of the local bus. Local Bus Baud Rate, Modbus Parity Enable, Even Parity and 2 Stop-bits parameters allow the communications format to be defined. If Modbus is used, ASI Polling and Broadcast is not available. Also, the Local bus will not communicate using ASI protocol.

Each index of the Modbus object issues a single Modbus request message on a round-robin basis. The controller generates the Modbus request message to the Slave Address with the CRC-16 checksum on the local bus.

The controller listens for and validates the Modbus response message. The controller waits 200 ms time out for a response. If it fails to get a response it will try on the next polling round.

Note: You may need to optimize communications. If you have too many Modbus instances enabled, and you set the Transmit Interval too small, it may start to interfere with system bus communications. Typically it will transmit several Modbus Messages per second. Adjust the Transmit Intervals, for example greater than 5 seconds, so that it is not polling continuously.

Modbus Read: For read messages the controller requests up to eight words of data starting at a Modbus Start Address. The returned data words are placed in the instance's Data Words with the first returned word in Attr-0, Modbus Data 1.

Four Modbus Read functions are supported:

Function 01 - Read Coil Status, 0xxxx

Function 02 - Read Input Status, 1xxxx
Function 03 - Read Holding Registers, 4xxxx
Function 04 - Read Input Registers, 3xxxx

Modbus Write: For write messages the controller sends one or more data words and waits for the acknowledge response. If the Modbus function is write, then the Modbus Data Handle returns a pointer to the first data value to be sent to the Modbus device. If multiple words are to be sent they must be in adjacent attributes of the same object instance. Up to 8 word values can be written to the Modbus device with Write Multiple Modbus Functions.

Four Modbus Write functions are supported:
Function 05 - Write Single Coil, 0xxxx
Function 06 - Write Single Register, 4xxxx
Function 15 - Write Multiple Coil, 0xxxx
Function 16 - Write Multiple Registers, 4xxxx

The Modbus Master object is supported in FW754a1.4 and improved in FW754a1.5. The latest version of ASI Expert supports the Modbus object. For further information about using the Modbus Master object please refer to the Object 39, Modbus Master object definition.

ASIC/2-7540 FW754a1.4 (04/07/2006)

- Adds new Object 39-Modbus Master for polling Modbus slave devices on Local Bus
- Adds System options Global Pass-Thru Disable and Group Pass-Thru Disable to prevent unwanted pass through of group or global messages.
- Improves the Function object (FUN) Look-up Conversions, by adding a Utility Start Attribute, so that multiple conversions can be in the same utility instance. It also adds Function Type 6, Float to Integer, for conversion of 32-bit floating point numbers.
- Improves the PID object operation. Fixes PID State Enable so that it now ignores State Handle if not set. Fixes PID Alarm Delay so that it is always at least 1 second. Fixes High/Low Alarm transition. Fixes the PID Interlock to add at least 1 second interstage to recalculate integral term.
- Improves the Sequence object (SEQ) operation. Fixes SEQ Interlock to clear “Can Be On” flags so that it restarts at the beginning.

Function Object Conversions

WHAT HAS CHANGED

- Multiple function instances can have different look-up conversions in same Utility instance
- New function type converts a 32-bit floating point number to an integer

STEPS TO COMPLETE UPGRADE

 Download and update Expert, ASIC2.mdb, a2-fun.PVS, a2-fun.TCL from the ASIC/2-7540 page in the integrator center.

REFERENCES

Updated Object 30 Function definition.

The operation of Object 30, Function Look-up Conversion, has been improved by the addition of a Utility Start attribute. With this change, multiple instances of Functions can now have different Look-up conversions stored in the same Utility instance.

A new Function type (6, Float-to-Integer) has been added to support conversion of a 32-bit floating point number into a 32-bit integer. The resulting value can be scaled in the Calculated Point object and otherwise used in the controller sequence.

PID Operation

WHAT HAS CHANGED

- Small changes in Gate operation
- Minimum 1 second Alarm delay. Fixed High Low alarm transition
- Ignore State Handle when “PID State Enable = No”

REFERENCES

Updated Object 18 PID definition.

The operation of the PID Object has been improved. When the gate handle is used, the PID object pauses when the gate goes false. When the gate returns to true, the PID object observes at least one second of interstage so that the calculation resumes smoothly. Other minor fixes include adding at least one second to the Alarm Delay and fixing the High Low alarm transition. The State Handle is now ignored if PID State Enable is No.

Sequence Operation

WHAT HAS CHANGED

- Sequence (SEQ) object operations are changed when the gate handle is used

REFERENCES

Updated Object 31 Sequence definition.

The operation of the Sequence Object has been improved. When the gate handle is used, the sequence object outputs go off when the gate goes false. When the gate returns to true, the sequence now does a fresh start and observes its interstage and minimum on/off timers.