

MI BPM Project MI BPM TB Control Module Status Report July 11th, 2006

Significant changes are highlighted.

MI BPM TB Control Module Production

Hardware status:

-) 11 Modules assembled and tested.
 - 1 Module needs FPGA to be replaced (Rick MAHLUM will help us on this task).
-) Testing in progress in parallel with firmware development.

Firmware status:

-) Coding work in progress.
-) All boards have been updated with latest firmware release (June 19th, 2006).
-) To be done:
 - 1) Transition Board single module addressing.
 - 2) Transition Board read back
 - 3) Diagnostics

MI BPM TB

Firmware status:

-) Conceptual work in progress together with Control Module firmware development.

MI BPM TB SYSTEM

As mentioned in Vince PAVLICEK email reports earlier this week some problems were encountered during testing.

-) One VME backplane was found to be defective and will be shipped to the manufacturer (Hybricon) for replacement.
-) Two Transition Boards were damaged by excessive current.

-) **Modification of Analog Crate power supply and Cable Harness:**

1) Cable Harness modification allows providing power to the Transition Boards only through the VME backplane.

Time required applying modification to one Cable Harness: 15 minutes.

2) Power Supply does not currently provide over voltage protection if sense leads are disconnected (output voltage exceed 14 Volts). With the modification the supply will never exceed the spec voltage (5 Volt) even in when the sense leads are disconnected.

Time required applying modification to one Supply: 15 minutes.

Suggestion: modify a spare cable harness and replace it when the power supply changes are applied. This should cut the system down time to 15 minutes.

-) To be done:

1) **Transition Board single module addressing.**

Each Transition Board has 8 channels, channels A1 to A4 and channels B1 to B4.

The module design allows for one gain value for the A channels (Gain A) and one gain value for the B channels (Gain B).

Currently the value of the Gain A and Gain B can only be set for the subrack because all the modules receive the same commands (broadcast).

Single module addressing will allow to set a Gain A and Gain B values for each Transition Board (Board by board gain control).

2) **Transition Board read back.**

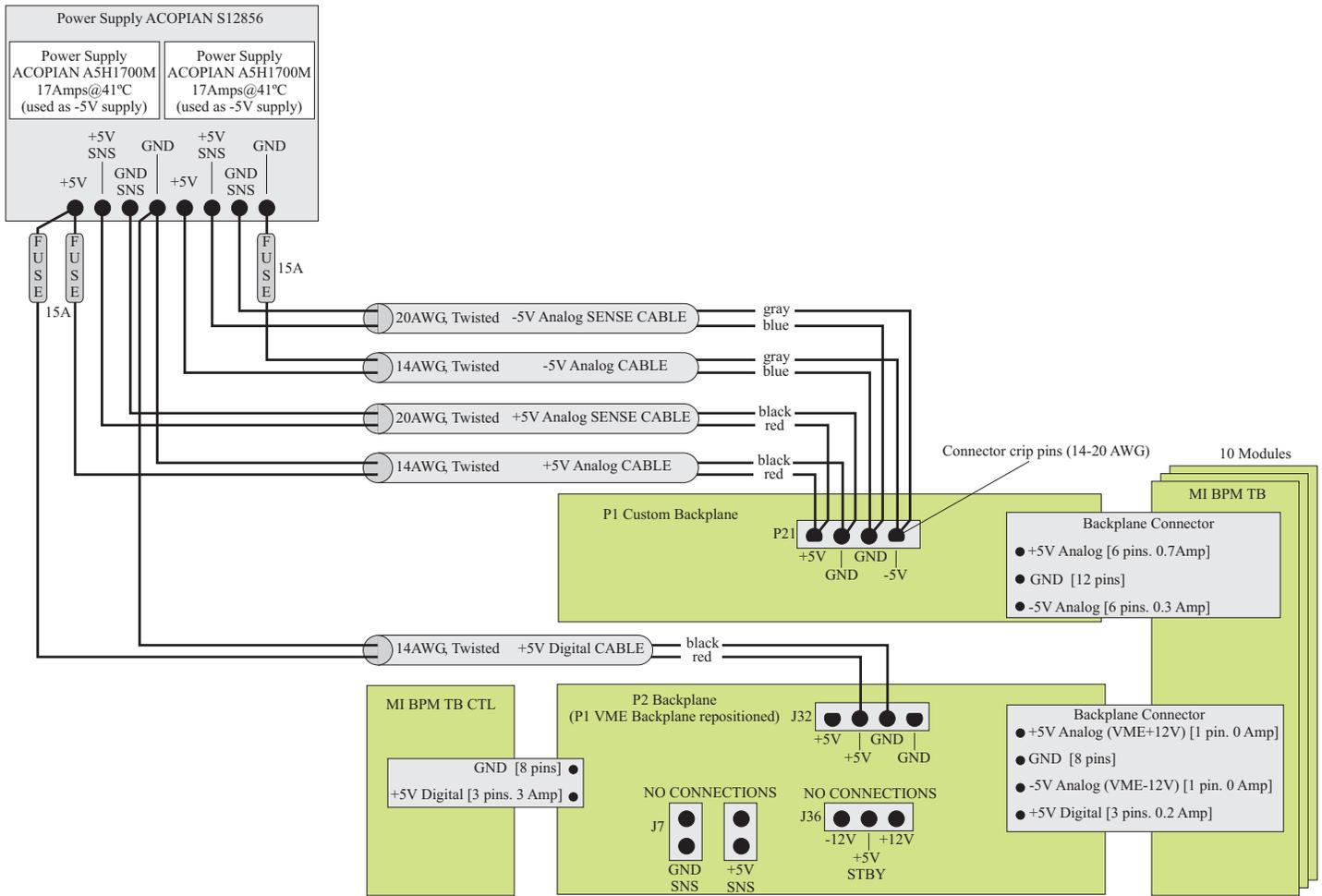
Will provide an easy way to verify that issued commands have been received by the Transition Boards and to check Transition Board status (gain values, etc.).

A prerequisite is that “single module addressing” is implemented.

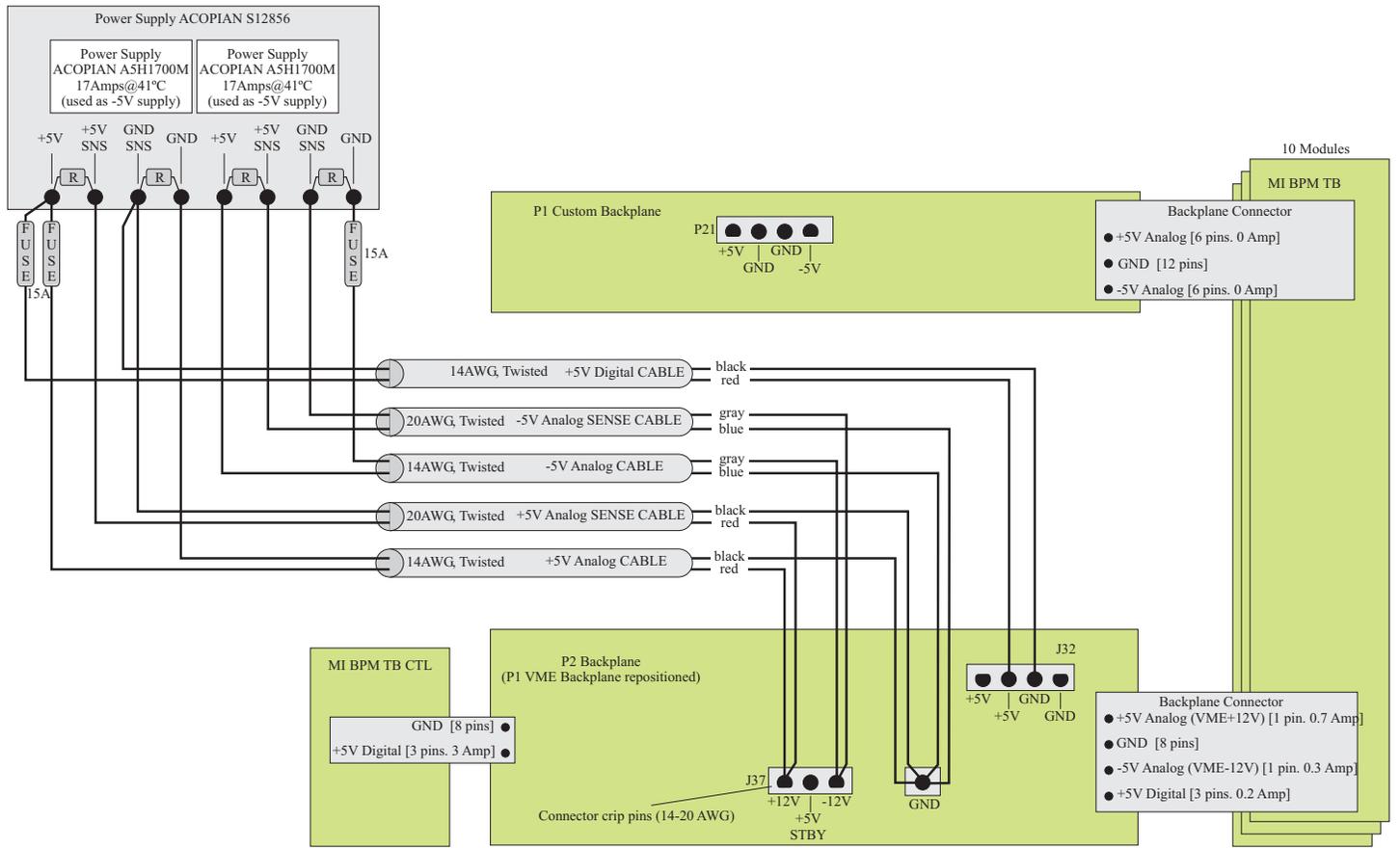
The Transition Board single module addressing and the read back will require changes in DAQ software (Steve FOULKES, Luciano PICCOLI), Timing Module firmware (Bill HAYNES), Control Module firmware and Transition Board firmware (Stefano RAPISARDA). Some minor hardware changes (green wires) may also be required.

Document related to the Control Module are available on the web page:

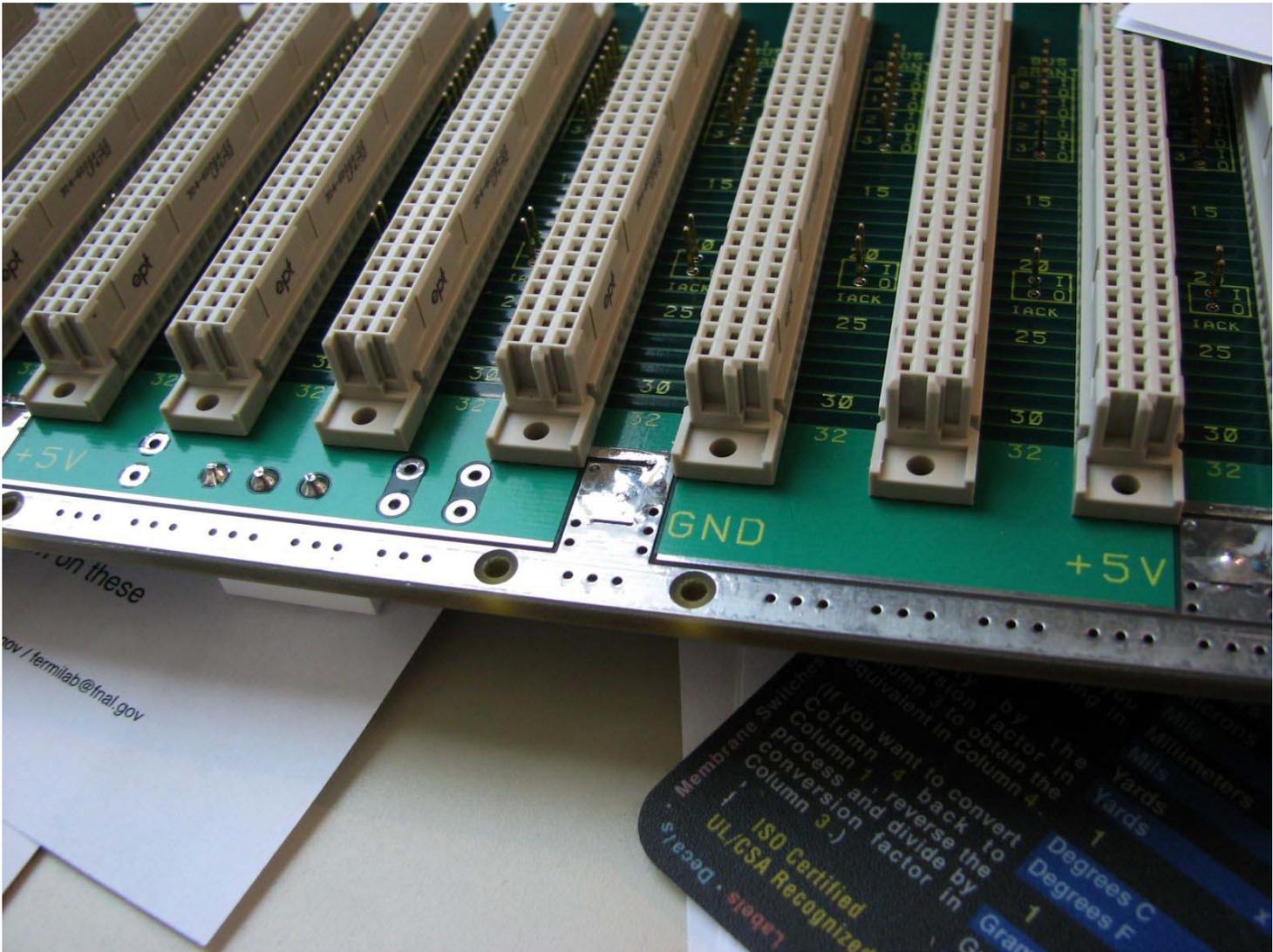
http://www-ese.fnal.gov/MI_BPM_TB_CTL/



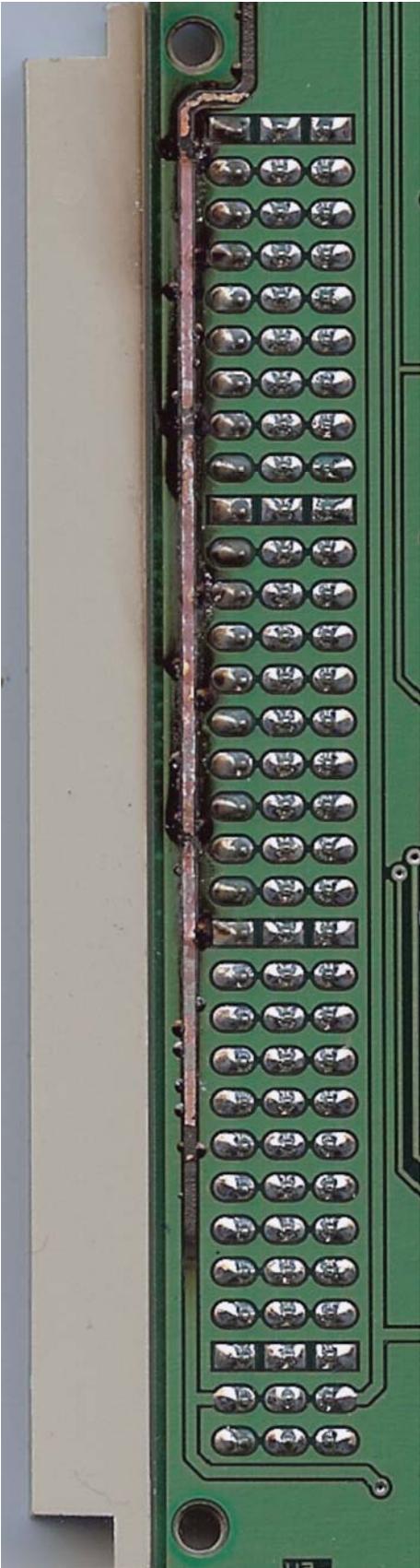
Analog Crate power cable harness scheme (OLD)



Analog Crate power cable harness scheme (NEW)



Manufacturing defect (short) on VME backplane
(photo courtesy of Mike BEHNKE)



Over current damage to a Transition Board (photo courtesy of Mike BEHNKE)



Agilent N3300A Electronic Load