

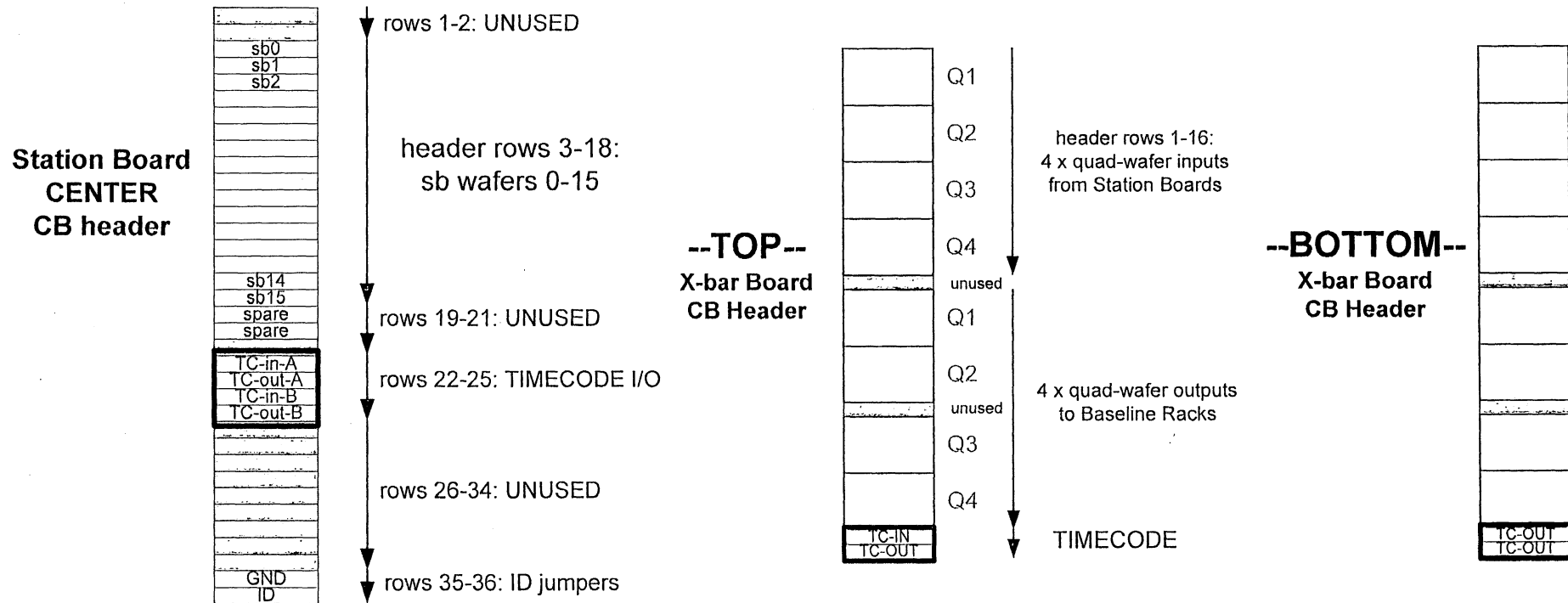
# Corr Sys Infrastructure

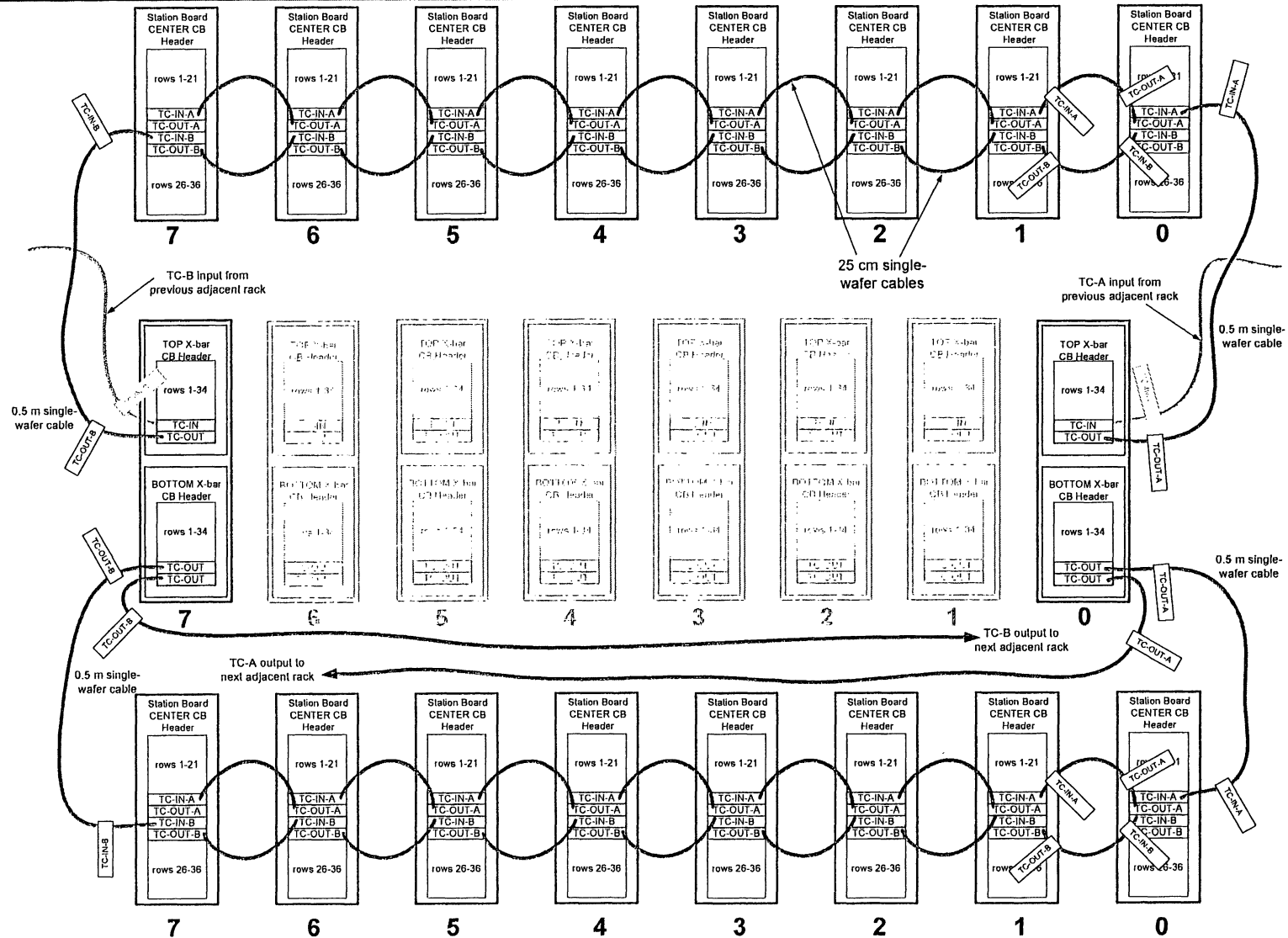
## *B. Carlson*



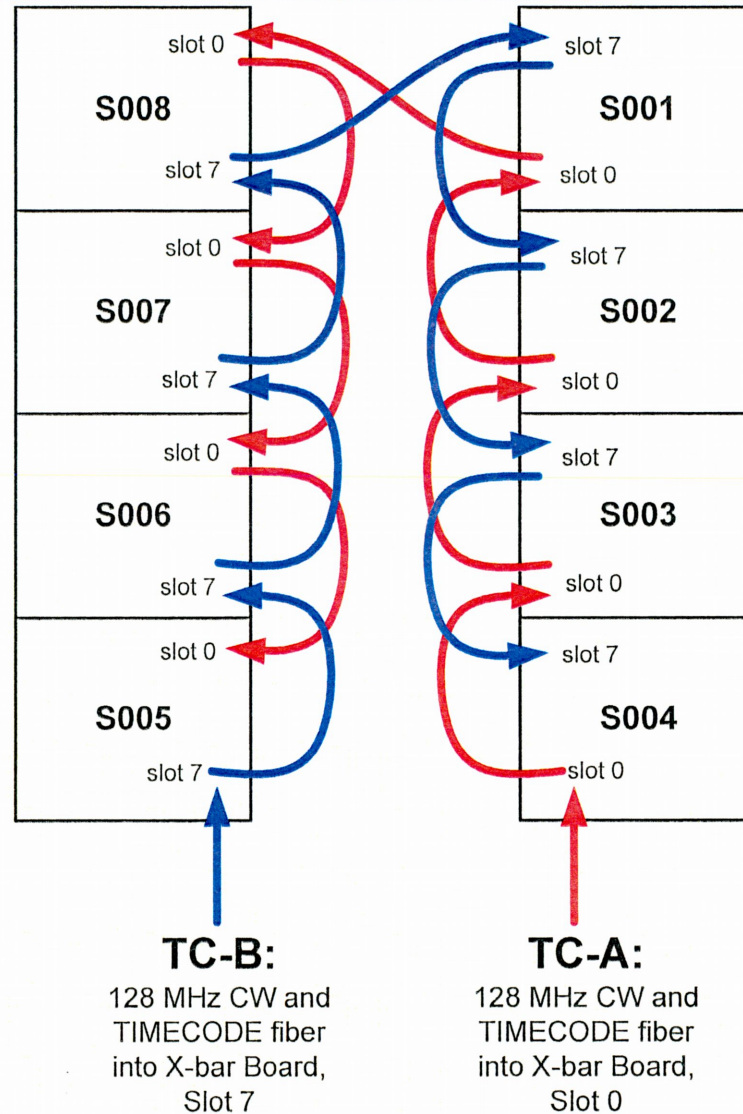
## Outline

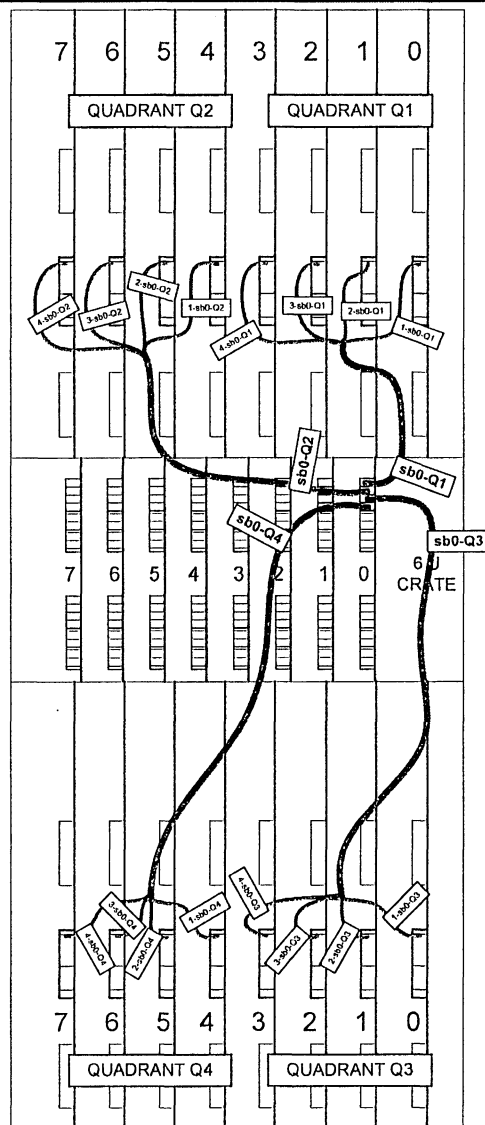
- “st-TC” distribution.
- HM Gbps cable layout.
  - Detailed cable installation plans available. All installation complete.
- Networking.
- Power monitor and control.
- Rack cooling.



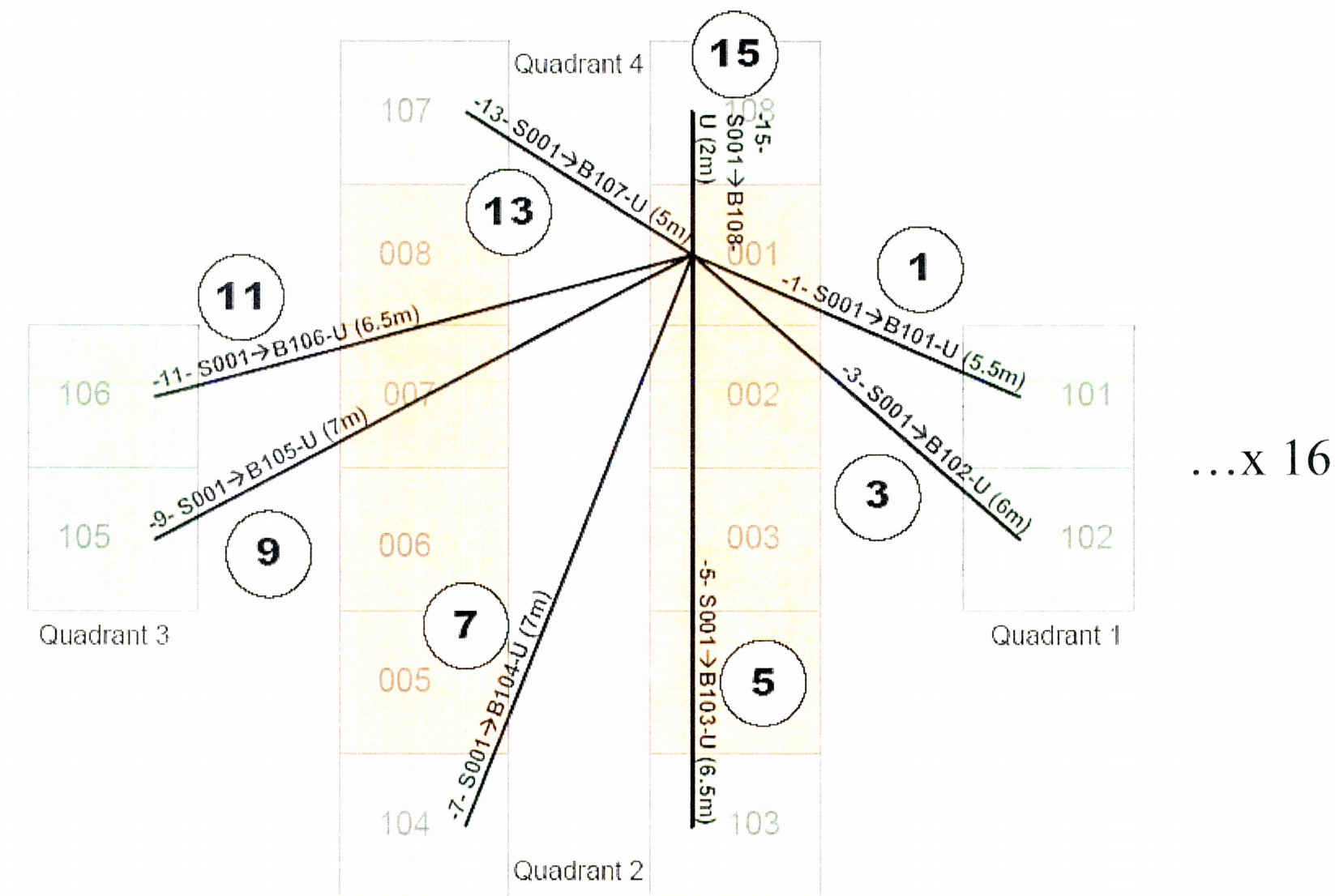


# st-TC – All St. Racks

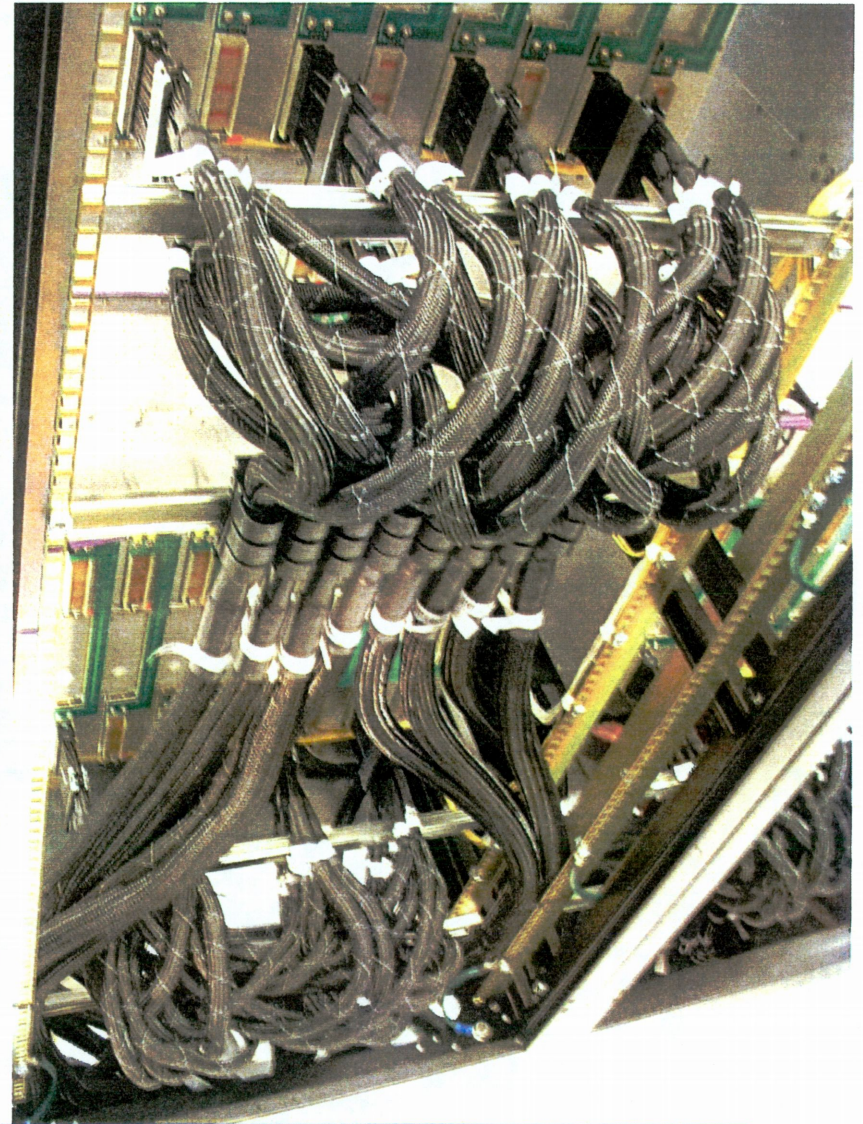
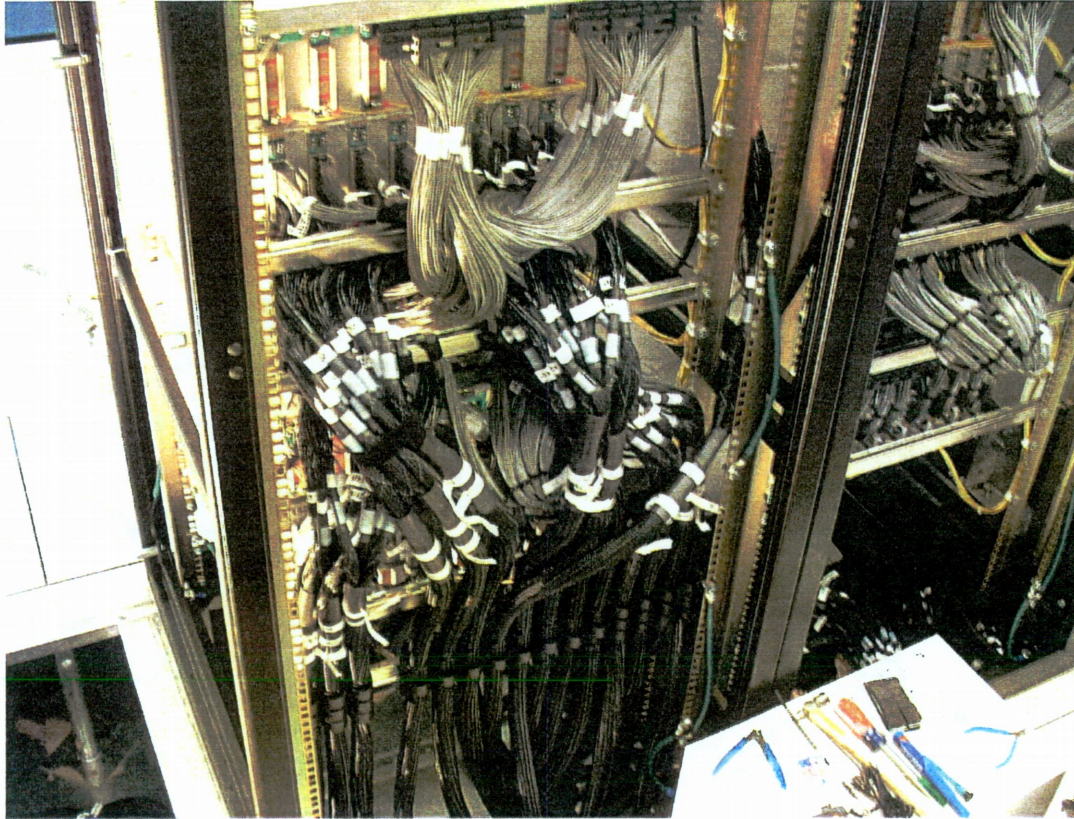




... x 16 for each St. Rack









## Networking – M&C

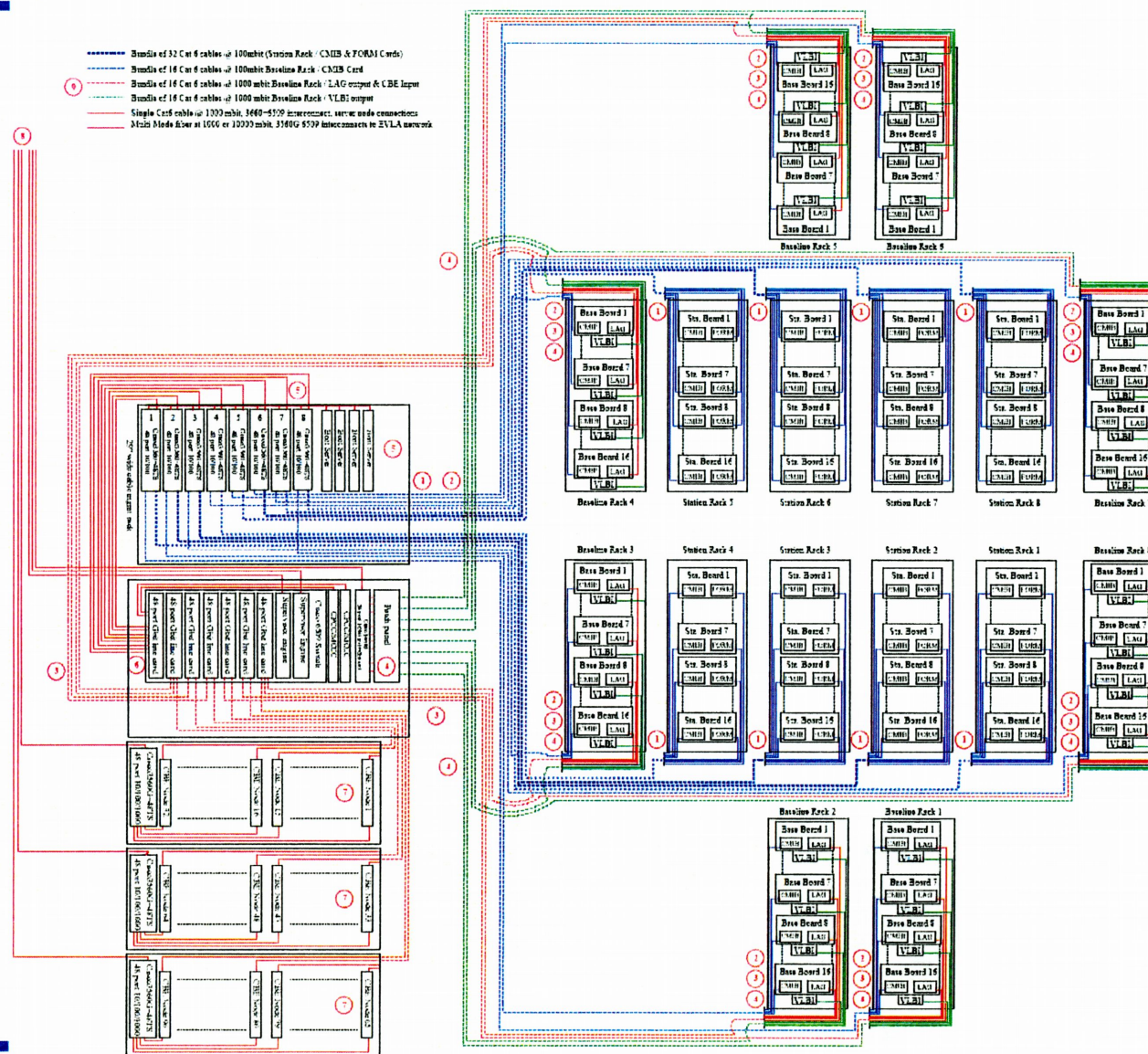
- Each Station Board has 2 CMIBs (Linux PC/104+ CPUs).
  - 1 for the FORM mezzanine board, and 1 for the Station Board.
- Each Baseline Board has 1 CMIB.
- 100Base-T connection. All network cables are BLUE.
- Tie all CPUs ( $128 \times 2 + 128 = 384$ ) into 8, 48-port Cisco switches.
  - Use aux ports to tie into EVLA M&C, and the CBE.

## Networking – CBE

- Each Baseline Board has a dedicated 1000Base-T output for correlated data.
  - All cables for CBE are RED.
- Tie into monolithic switch, which then ties into cluster of ~50 blade servers. All 1000Base-T.
- Phased data packets can also be routed to the CBE, by setting the Baseline Board GigE FPGA accordingly.

## Networking – VLBI

- Each Baseline Board has dedicated 1000Base-T output for phased data packets.
  - All cables for VLBI recording are YELLOW/GREEN.
- Tie all these into a patch panel to select which Baseline Board's phased data gets recorded.
- Run several 1000Base-T connections into a switch with 10 GigE output to MkVc data recorder.





## **Power M&C**

- Each rack has an RPMIB wired into place and attached by 2 x 100-pin SCSI cables to central computers containing NI6509 digital I/O boards.
  - RPMIB contains diode-ORs to allow for hot-redundant fault-tolerant operation.
- Allows per slot:
  - Remote power monitor line monitoring.
  - Remote power on/off control.
  - Remote fan speed control and fan speed monitoring.

## Rack Cooling

- Detailed report of cooling methods investigated in document A25031N0003.
  - Also investigated heatsink performance, thermal R etc.
- Conclusion: use 4 DC “motorized impellers” in “rack-as-a-duct” airflow for best cooling performance. Mount fans at top of rack to draw air thru, rather than blow, for max airflow.
  - Have high static pressure to overcome high resistance to minimize loss of air flow. 1700 cfm, 15 °C required.
  - Assisted by system air blowers.
  - Tested to 10 kW, with worst-case heatsink temperature of 45 °C, corrected to 7000 ft.

