To: Mark 5 Development Group

From: Dan L. Smythe

Subject: The Mark 5A I/O Panel

The Mark 5A VLBI recording system is a direct hardware replacement for a Mark 4 or VLBA tape transport at either a field station or at a correlator. This compatibility is provided by a universal I/O panel with connectors for connecting cables from a Mark 4 Formatter, from a VLBA Formatter, to a VLBA Data Quality Analyzer (DQA), and to a VLBA or Mark 4 Station Unit. A block diagram of the I/O panel is shown in Dwg. No. 1 on the next page.

The I/O panel has two 50-pin and two 40-pin input connectors for connecting the output of a Mark 4 formatter at a data rate of 1 Gb/s. Signals from two selected tracks are routed to the Mark 4 decoder via the formatter, as shown in the block diagram.

The I/O panel also has four 40-pin input connectors for connecting the outputs of two VLBA Formatters at a combined data rate of 512 Mb/s. (Most sites outside the VLBA have only one set of formatter cards, with a maximum data rate of 256 Mb/s.) There is also a 20-pin connector compatible with the VLBA DQA input cable.

If a station has both a VLBA formatter and a Mark 4 formatter, only one set of cables can be connected at any given time, because the connectors for the VLBA formatter and for the Mark 4 formatter and decoder are connected in parallel.

The panel also has four 40-pin output connectors compatible with the data input connectors of the station unit at a Mark 4 correlator. The VLBA correlator requires an adapter module between the Mark 5 I/O panel and the station unit.

A sketch of the I/O panel is shown on pages 3 and 4, and schematic diagrams of the I/O panel are on pages 5-7.
MARK 4 DECODER

MARK 4 FORMATTER

MARK 5A I/O PANEL

MARK 5A INPUT-OUTPUT BOARD

VLBA DQA

VLBA FORMATTER

MARK 4 FORMATTER

1 Gb/s

512 Mb/s

40 40 50 50 40 40 40 40 40 40 68 68 68 68

OUTPUT TO CORRELATOR OR SECOND MARK 5 UNIT

TO CORRELATOR FROM FORMATTER

TO DECODER OR DQA

FPDP BUS
MARK 5 I/O PANEL
BOTTOM SILKSCREEN