

HIRES Dewar Upgrade

Project Monthly Report – Sept 20/2

Progress

Optics

The field flattener is optically fabricated and meets the specifications. The optic has not yet been coated. Bill Brown is contacting LLNL about the coating.

Detectors

A recommendation was made to the SSC to switch the detectors to E2V CCDs in light of the problems with the QE of the MIT/LL CCDs in lot 20. The problems with the MIT devices has been covered elsewhere.

Mechanical

Conceptual mechanical design of a backplane of E2V devices has been complete and we are waiting a decision on the detectors to be used. (See attached sketch)

One of the 3 backplanes designed for the MIT devices is machined and is going out for heat treating and grinding. The other two backplanes have been placed on hold. The dewar housing is almost complete; needing only tapped holes for the optical baffle (baffle design not yet complete).

Mechanical and geometric data for the E2V chips were obtained from the manufacturer. Mechanical samples for CCD types 42-90 and 44-80, and a custom ZIF connector have been ordered from the manufacturer. We teleconferenced with Rich Goeden, Bob Weber (ME), John Cromer (SE), and Roger Smith (EE of Cal Tech to learn from their recent experience with E2V CCD's. We also plan to do the same with Rick Murowinski (of DAO, Victoria) sometime soon.

Electronics

A preliminary layout was completed for the CCD interconnect board associated with the MIT/LL CCDs to verify that all the CCD signals could be routed to a flex circuit connector. Due to the poor quantum efficiency of the MIT/LL CCDs this board has been put on hold. Time has been spent reviewing the electrical signals required for the E2V CCDs as an alternative CCD. The good news is our standard set of CCD signals from our SDSU-2 CCD controller can accommodate the additional bias voltages and clocks from the E2V devices.

More conceptual design has been done for the cabling and CCD interconnections within the electronics box. A prototype CCD cable that would be used to pass the

CCD signals from the CCD controller to the electronics box will be arriving this week and testing of it will start.

A schematic of Bob Leach's updated video board, that is supposed to eliminate crosstalk between channels, was reviewed. If it proves to be crosstalk free, some video cabling modifications to the CCD controller will have to be made. Some other modifications to the board would also have to be made to make the gain of each channel compatible with our current SDSU-2 video board. We will be trying to test this board for crosstalk within the next month.

Progress on the CCD controller has slowed a bit due to the uncertainty of which CCD detectors we will be using. The layout of the chassis is on hold until we have the information needed to continue. The Lick boards used in the chassis and CCD electronics boxes are starting to arrive. We will start stuffing those soon. As you know, the SDSU 2 boards are 'on hold' while the Rev. A video board is evaluated. If a new set of clocks are needed if we go to the EEV device the current set of clock cards will handle the extras. The clock cards each put out enough clocks for two CCDs and we will be using two clock cards to run the 3 CCDs leaving use with 12 extra clock lines that should suffice for the added clocks on the EEV devices.

Software

Nothing to report this month

Issues and Concerns

The uncertainty over which detector to use is causing a schedule impact. Time was required to evaluate the impact the change would make, and additional time will be needed, if the decision is made to change to the E2V detectors. Currently design work is continuing on areas that are not affected by the detector choice, but soon we will need to know this information in order to continue. A change of scope request is being prepared to request additional money in the event that we change to the E2V detectors. The cost increase is currently estimated to be about 63K including contingency.

Schedule

The schedule is attached. We expect a schedule slip if the choice of detector is not made before September 27, 2002.

Budget and Spending Profile

The budget summary is attached. At the end of August we had spent \$161,551 or 18% of the budget including contingency.

