

HIRES Dewar Upgrade

Project Monthly Report – Jan 20/03

Progress

Optics

Nothing to report this month, the field flattener is still at LLNL waiting to be coated.

Detectors

We have received an E2V detector that Richard Stover's Lab will test in February after our test dewar is modified to mount this chip. We also have 3 engineering grade E2V chips that were received earlier from CIT.

Two MIT/LL wafers were in Tucson earlier this month, waiting to be coated. Once coated they will be returned to MIT for processing and mounting on AlN packages. We are expecting some of those MIT/LL chips at Lick on January 24th for testing.

Mechanical

Surgery on the support frame is complete. An access hole had been added to reach flange bolts at the LN2 connection end of the transfer pipe. Additional fine tuning was added to provide more clearance during final alignment.

All dewar components are complete, including earthquake clips for the field flattener.

Assembly and fit-up tests with the dewar contents and the dewar went extremely well; things fit and can be inserted with relative ease.

Had an assembly feedback briefing with Kirk Gilmore. As a result the backplane and splashguard have been redesigned. This corrects several deficiencies. More access to the periphery of the backplane will be available for flatness measurements; and greater clearance between the guard and the mosaic will be provided. A backplane prototype will be made from aluminum and tested. The major components of the guard will be re-made. The base parts will now be made of delrin and a new lexan top plate will be fab'd to conform to the new outline.

PAVE has provided a drawing of the micro-DSUB connector for our approval. It looks good. Delivery will be 5-6 weeks.

Vented hardware used in the dewar has been ordered.

Sent request to Keck/CARA to have the new vacuum pump and controller sent to us, so that we can install, test, and send complete upgrade system back for easy swap on installation on the mountain.

Electronics

The low-crosstalk version of the 68-pin CCD cable from 3M finally arrived over the holidays and was tested the first full week in January. This 68-pin cable is a flat, small width cable that does not exceed the current optical "footprint" of the CCD cable shield tray in HIRES. The noise performance of a MIT/LL CCD using our standard 61-pin cable from the CCD controller to its electronics box was compared to the noise performance of the same system, but with this new 68-pin cable assembly. The results were quite favorable for the 68-pin cable. One video output of the CCD did give an increase of about 0.1 DN of noise with the 68-pin cable. The other video output of the CCD however gave comparable noise performance to that of the standard 61-pin cable. So we are now continuing on with the overall CCD controller and electronics box design incorporating this 68-pin cable assembly.

Printed circuit layout, both preliminary and detailed, continues, both with the electronic box boards (analog switch and power filter), as well as within the dewar (MIT/LL CCD interconnect board and accompanying flex circuit).

The 2nd generation SDSU-2 video boards have been ordered. These video boards will be identical to the video boards used on ESI and DEIMOS, except only one channel of these two-channel video boards will be utilized (and therefore stuffed with components). This is necessary to avoid the inherent crosstalk between a video board's channels. Thus we will be ordering 6 video boards to process the two video outputs from each of the three CCDs in the HIRES mosaic and also one spare.

Software

Bob Kibrick is reviewing the CARA requirements that Grant Hill published in early January.

Issues and Concerns

Keeping to the schedule both for delivery of the CCDs and in development of the electronics circuit boards.

Schedule

The schedule is attached complete the critical path

Budget and Spending Profile

To the end of December the project has spent \$316,265.77 or 42 % of the project funds, not including contingency. A summary of the budget is attached.