Advanced LIGO Engineering Change Request (ECR)

ECR Title: Update ODC EPICS outputs to uint32

DCC No: E1400428

Date: 10/24/2014

Requester: Duncan Macleod

Impacted Subsystem(s): PSL,IMC,HPI,ISI,SUS,LSC, ODC

Description of Proposed Change(s): Modify ODC_CHAN library model to write all EPICS variables as uint32 via the cdsEpicsOutputLong Simulink part introduced with RCG v2.9.

This will then require all top-level models that contain ODC channels to be rebuilt – including all ISI, HPI, and SUS models, PSLISS, ASCIMC, LSC, ASC, OMC, and all ODC.

This ECR impacts both interferometers.

Reason for Change(s): Single-precision float cannot record 32-bit ODC data with sufficient precision.

Estimated Cost: 0

Schedule Impact Estimate: 0

Nature of Change (check all that apply):
- ☐ Safety
- ☐ Correct Hardware
- ☐ Correct Documentation
- ☐ Improve Hardware
- ☐ Improve/Clarify Documentation
- ☒ Change Interface
- ☐ Change Requirement

Importance:
- ☐ Desirable for ease of use, maintenance, safety
- ☒ Desirable for improved performance, reliability
- ☐ Essential for performance, reliability
- ☐ Essential for function
- ☐ Essential for safety

Urgency:
- ☐ No urgency
- ☐ Desirable by date/event: _____
- ☒ Essential by date/event: ___ER7_____
- ☐ Immediately (ASAP)

Impacted Hardware (select all that apply):
- ☐ Repair/Modify. List part & SNs: _____
- ☐ Scrap & Replace. List part & SNs:_____
- ☐ Installed units? List IFO, part & SNs: _____
- ☐ Future units to be built

Impacted Documentation (list all dwgs, design reports, test reports, specifications, etc.):

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Disposition of the proposed change(s):

The disposition of this proposed engineering change request is to be completed by Systems Engineering and indicated in the "Notes and Changes" metadata field in the DCC entry for this ECR. The typical dispositions are as follows:

- **Additional Information Required**: in which case the additional information requested is defined. The ECR requester then re-submits the ECR with the new information using the same DCC number for the ECR but with the next version number.
- **Rejected**: in which case the reason(s) for the rejection are to be given
- **Approved**
- **Approved with Caveat(s)**: in which case the caveat(s) are listed
- **TRB**: the ECR is referred to an ad-hoc Technical Review Board for further evaluation and recommendation. It is the System Engineer's (or designee's) responsibility to organize the TRB. The System Engineer (or designee) then makes a technical decision based on the TRB's recommendation. Links to the TRB's documentation (charge, memos, final report, etc.) are to be added to the "Related Documents" field for this ECR.
- **CCB**: a change request for approval of additional funds or schedule impact is to be submitted to the Configuration Control Board. Links to the CCB's documentation (CR, etc.) are to be added to the "Related Documents" field for this ECR.

Concurrence by Project Management:

Acknowledgement/acceptance/approval of the disposition is to be indicated by the electronic "signature" feature in the DCC entry for this ECR, by one the following personnel:

- Systems Scientist

- Systems Engineer

- Deputy Systems Engineer