Status of Opto-Board Installation

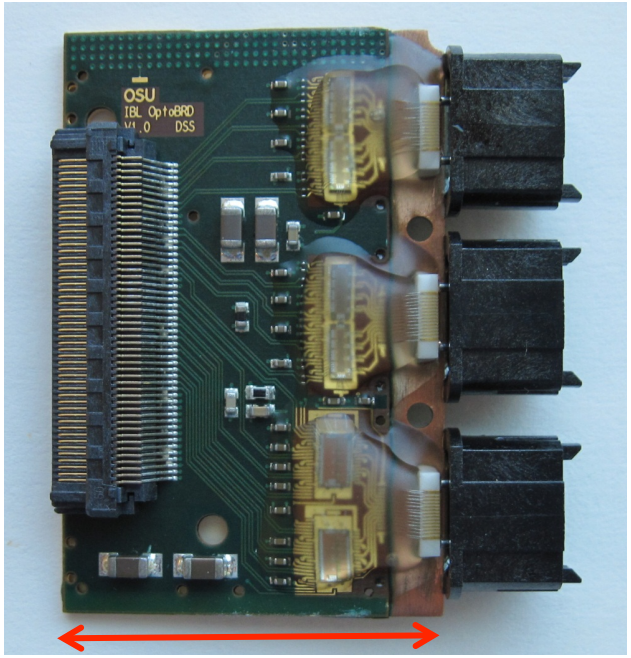
K.K. Gan, R. Ishmukhametov, H. Kagan, R.D. Kass,
K. Looper, J. Moss, J. Moore, S. Smith, Y. Yang
The Ohio State University

P. Buchholz, M. Ziolkowski
Universität Siegen

May 21, 2014

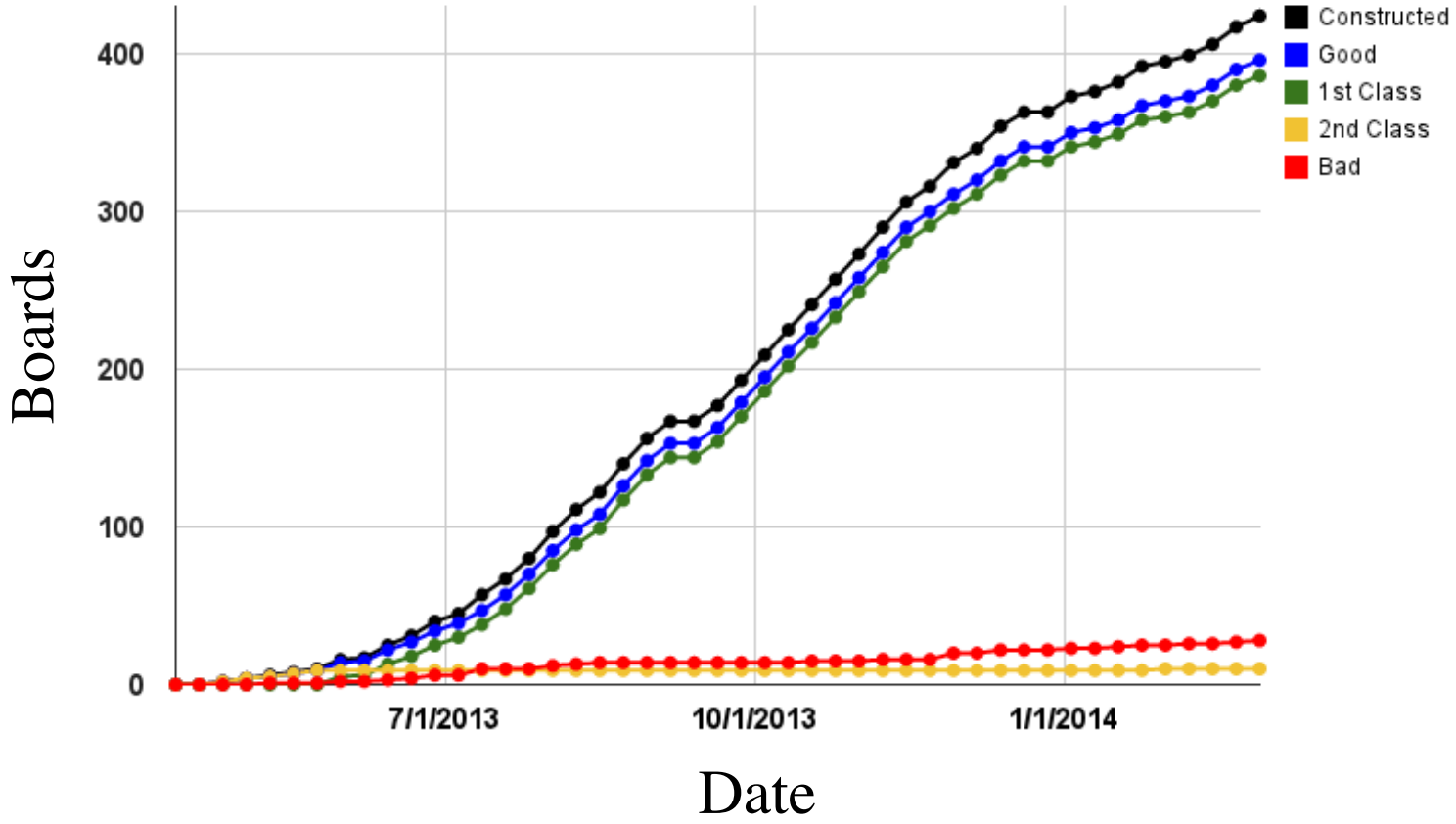
Introduction

- 3 opto-board flavors
  - nSQP D opto-board (disk, L1, L2): 7 TTC + 14 data links
  - nSQP B opto-board (B-layer): 7 TTC + 14 data links
  - IBL opto-board: 8 TTC + 16 data links



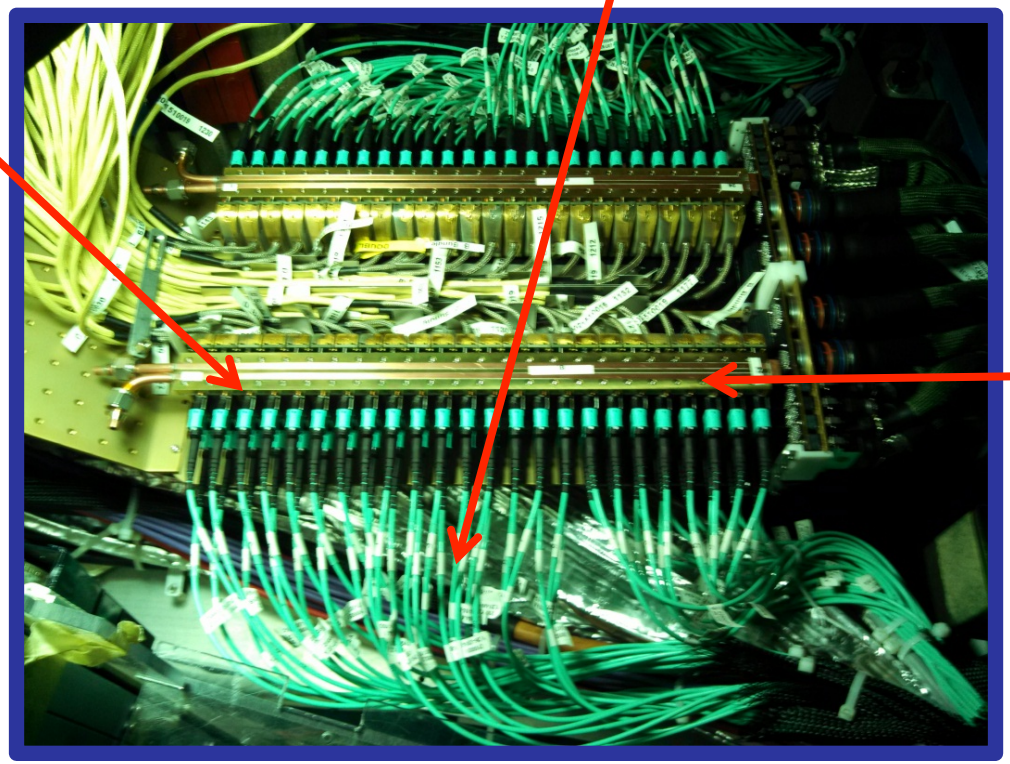
Production Statistics

- Total fabricated: 421
  - Good: 393 (1st class: 383, 2nd class: 10)
  - Bad: 28



nSQP Opto-Boards Installation

- Installation + electrical and optical connectivity tests successfully completed in middle of April
  - awaiting cooling for additional tests
- Installation process very smooth and straightforward
  - opto-board/opto-box/ER bundle/fibers fit together well



Problems Encountered

- three opto-boards were replaced during installation:
  - One opto-board/module had flaky configuration
    - problem fixed after replacing the opto-board
    - problem not reproducible in opto-board reception test system
  - One opto-board/PP0 with flaky VVDC/module power crosstalk
    - problem fixed after replacing the opto-board and plugging/unplugging the ER bundle
    - problem not reproducible in opto-board reception test system
  - One opto-board connector broken during cooling line installation
    - ⇨ replaced

IBL Opto-Boards Installation

- Current plan calls for IBL opto-boards installation in 1-2 weeks

Accelerated Lifetime Test

- Industry standard: opto-boards should survive for 1,000 hours at 85°C/85% relative humidity
- Started the test on two IBL boards
  - No failure seen up to 672 hours
- D and B boards will be added soon
- After 2,000 hours, repeat the test on new boards at 50/50 for months

Summary

- Opto-boards production completed and delivered
- nSQP opto-boards successfully installed
- IBL opto-boards will be installed soon
- Long-term reliability study in progress