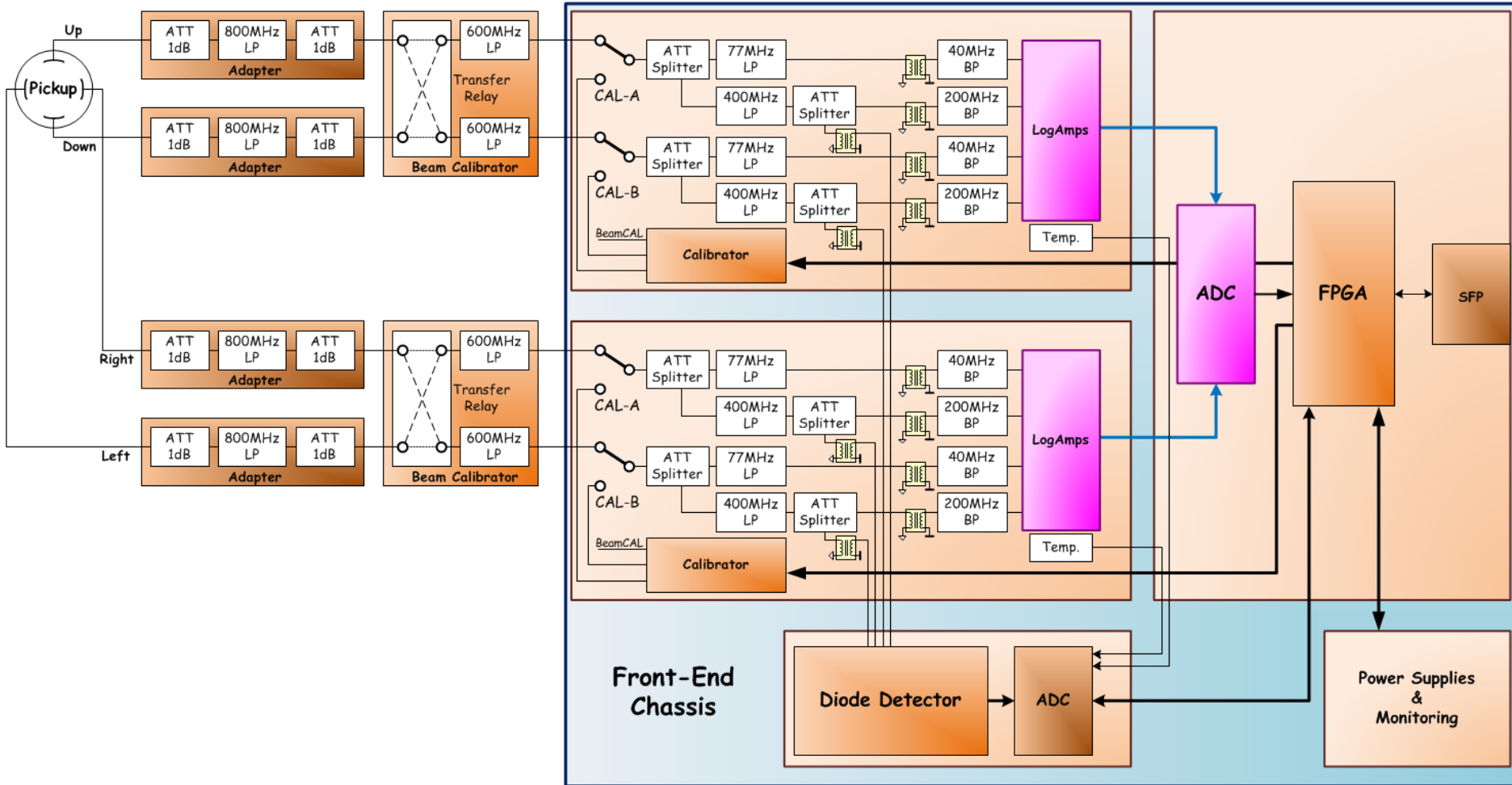


SPS Beam Position Monitors: Front-End Electronics

- BPM Acquisition Architecture
- Components for Irradiation Tests

Front-End Architecture





Analogue Components

- LogAmps
 - ADL5519: *Analog Devices*, Dual Log Detector
 - MAX2016: *Maxim*, Dual Log Detector
- ADC Drivers
 - ADA4932: *Analog Devices*, Differential ADC driver
 - THS4521: *Texas Inst.*, Differential ADC driver
- ✓ These components have been qualified at PSI (TID 1kGy)

Analogue Components

- Low Dropout Regulators
 - **LT1963A**: *Linear Tech.*, LDO Regulator (1/3 bad)
 - **LP3875**: *National Semi.*, LDO Regulator (3/3 bad)
 - LM2991S: *National Semi.*, LDO Regulator
 - **TL1963A**: *Texas Inst.*, LDO Regulator
 - **TPS7A4501**: *Texas Inst.*, LDO Regulator
- ✓ These components have been qualified at PSI (TID 1kGy)

- Single-Fiber Bidirectional SFP Transceivers - 1.25 Gb/s (Tested at PSI, July 2012)
 - *Ligent*
LTE5350-BC & LTE3550-BC
 - *Lightron*
WSP24-313LC-I5A & WSP24-513LC-I3A
 - *Source Photonics*
SPL-35-GB-CDFM & SPL-53-GB-CDFM
 - *Yamasaki*
S41315L-15B & S41315L-15Y



- Single-Fiber Bidirectional SFP Trans. ≥ 2.5 Gb/s
 - *FTTX Technology*
 - FT5A05D-35 & FT5A05D-53: 3Gb/s
 - *Ligent*
 - LTF2305-BC & LTF3205-BC: 10Gb/s
 - *Lightron*
 - WSP48-3S3LC-C5A & WSP48-5S3LC-C3A: 2.5Gb/s
 - *Source Photonics*
 - SPPL-OR-XE-BX-CDFA & SPPL-RO-XE-BX-CDFA: 10Gb/s



Analogue/Digital Converters

- 40...65Mps – LVDS Serial ADC
 - AD9252: *Analog Devices* **Octal** 14-bit
 - AD9259: *Analog Devices* **Quad** 14-bit

 - LTM9009: *Linear Tech.* **Octal** 14-bit
 - LTC2171: *Linear Tech.* **Quad** 14-bit

 - ADS5294: *Texas Inst.* **Octal** 14-bit
 - ADS6442: *Texas Inst.* **Quad** 14-bit

- Low Voltage Buffers
 - 74VMEH22501: *Texas Inst.* 8-bit-Transceiver
 - 74VCX162244: *Fairchild* 16-bit Buffer/Line Driver
 - 74ALVCH162244: *Texas* 16-bit Buffer/Line Driver
- LVDS Buffers
 - FIN1108: *Fairchild* 8-port LVDS Repeater
- Differential Drivers
 - AD8131: *Analog Devices* Differential Driver

- FPGAs

- *Altera*

- Stratix V (14.1Gb/s Transceivers)
 - Arria V (6.5, 10.3 or 12.5Gb/s Transceivers)
 - Cyclone V (3.1 or 6.1Gb/s Transceivers)

- *Xilinx*

- Kintex-7 (12.5Gb/s Transceivers)
 - Virtex-6 (11.18Gb/s Transceivers)
 - Spartan-6 (3.2Gb/s Transceivers)



Project Development Plan

- Hardware Production and Test
 - Prototype Test (2013): with standard digital parts
 - Pre-series production (2013-2014)

**Hardware Installation in 1 Sextant
(mid 2014)**