

XRM Readout Update

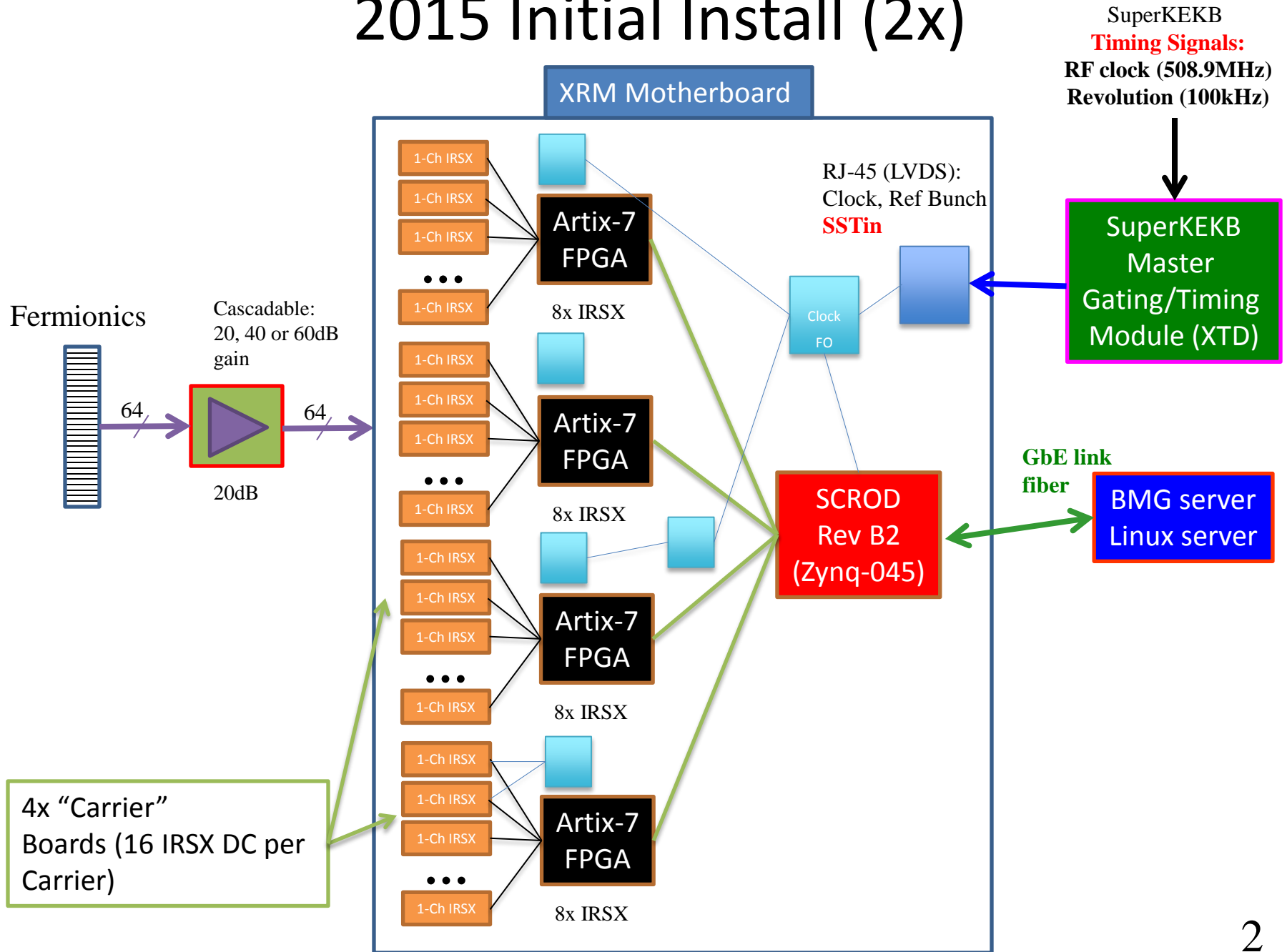
- Due to personnel changes and looming deadlines for delivering XRM readout, held a review of the specifications and current status of the system
- A number of concerns and suggestions for how to improve the packaging, performance, thermal and implementation were discussed
- Critical items:
 - **Bring in more manpower**
 - Modify amplification, cabling, and clocking

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2015 Initial Install (2x)



Major changes

• Amplifiers

- Use LNA (not gain block) in first stage and place on detector
- Samtec cables directly to Carrier boards (32 → 2x 16 split)
- 40dB amplification on Carrier

• Carrier

- Simplify Carrier by reducing reading 2 channels/IRSX
- Clocking via FMC connector
- Power via FMC connector

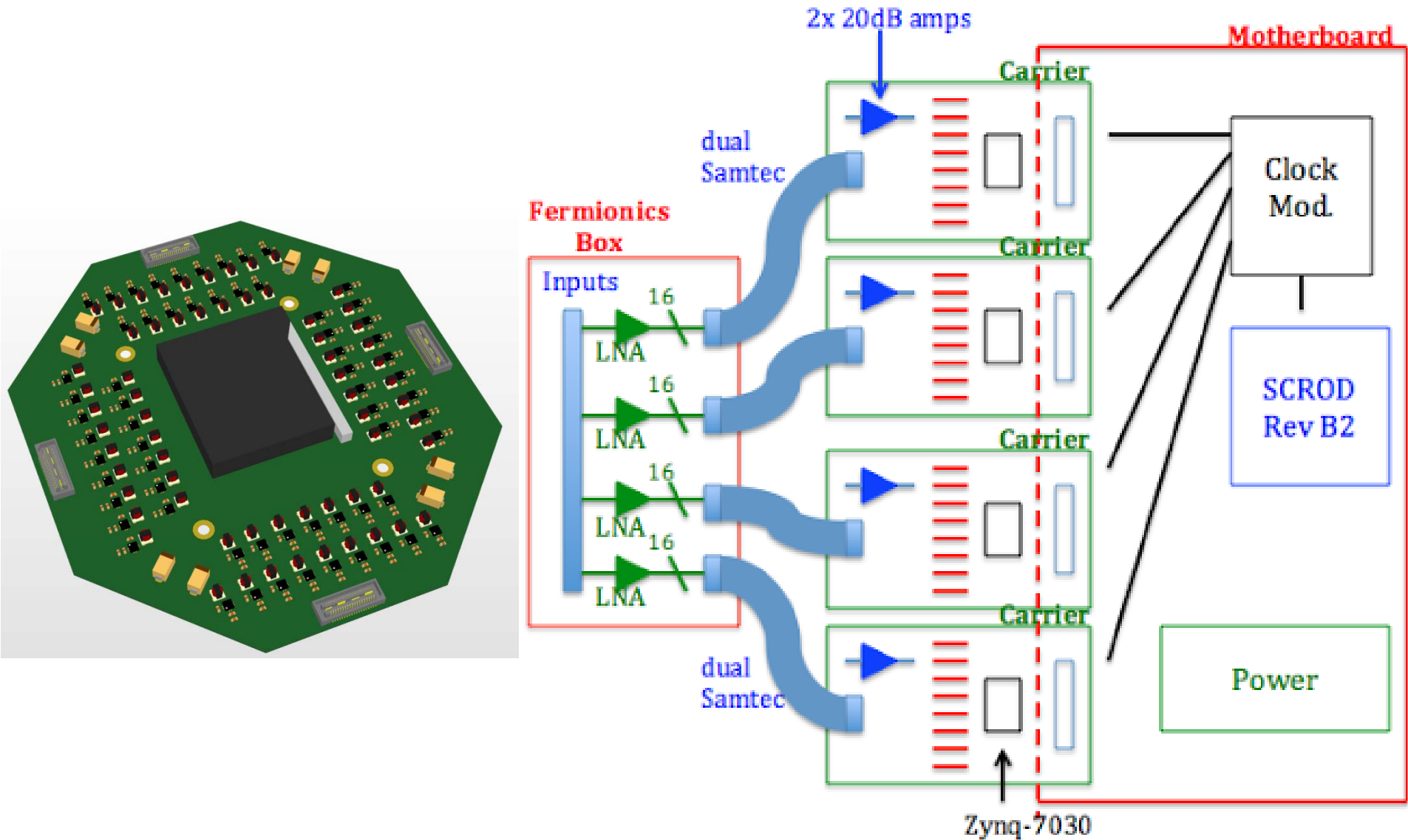
• Motherboard

- Incorporate clocking functionality on board
- Improved power control

• Timing control (XTD)

- Consider generating SSTin directly, in addition to 127MHz
- Need prototype soon

Revised XRM Configuration



Division of Labor

- **Detector/amps [Vihtori, with Peter/Isar mmgt]**
 - Use LNA (not gain block) in first stage and place on detector
 - Samtec cables directly to Carrier boards (32 → 2x 16 split)
 - 40dB amplification on Carrier
- **Carrier (except amps) [Gary/Matt/Bronson]**
 - Simplify Carrier by reducing reading 2 channels/IRSX
 - Clocking via FMC connector
 - Power via FMC connector
- **Motherboard [Matt]**
 - Incorporate clocking functionality on board
 - Improved power control
- **Timing control (XTD) [Khanh, Matt/Gary]**
 - Consider generating SSTin directly, in addition to 127MHz
 - Need prototype soon

Further Tasks

- **Carrier firmware [Bronson with Luca]**
 - **IRSX configuration**
 - **IRSX orbit sampling/readout bunches select**
 - **IRSX Event building**
- **SCROD firmware [James with Luca/Matt]**
 - **Carrier Event building (mostly Luca)**
 - **Real-time Pedestal subtraction**
 - **PS processing to reduce data, build real-time histograms**
- **Cooling/mechanics [Chris]**
 - **Detector housing somewhat larger (pre-amplifiers)**
 - **Look at optimizing cooling for both detector and readout**
 - **Improved feedthroughs?**
- **Power [Matt with Peter]**
 - **Better choice?**