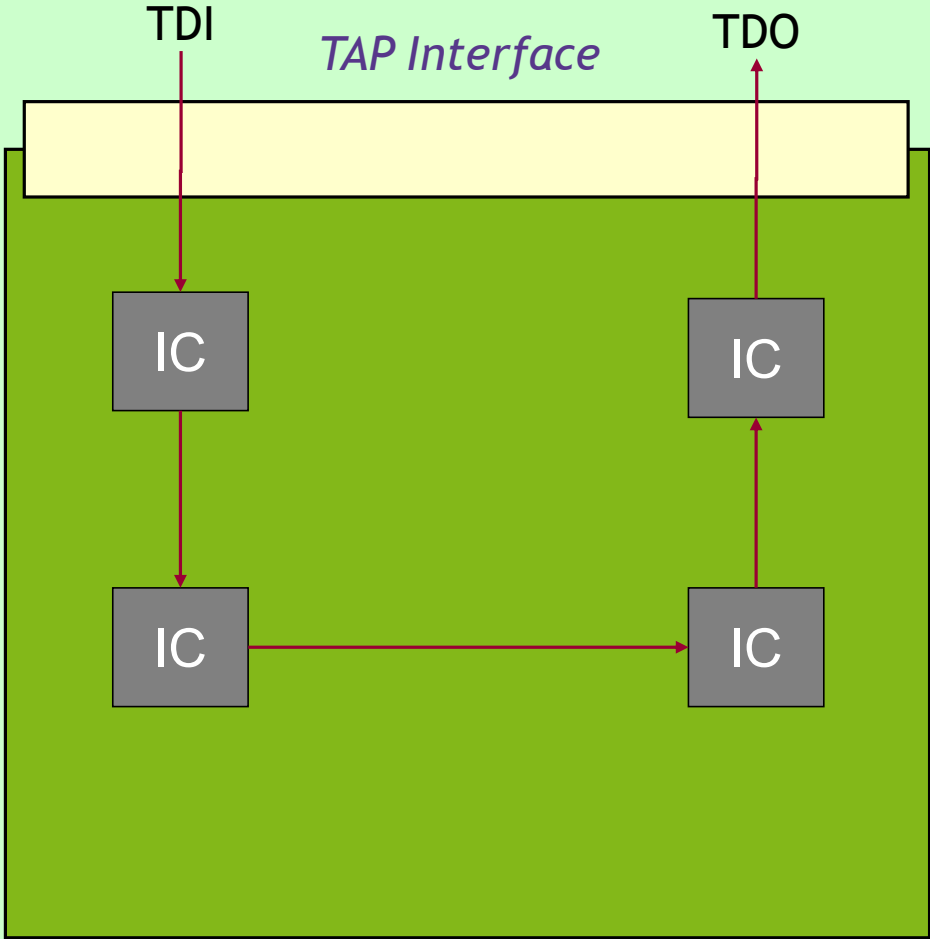




The System JTAG Initiative Group

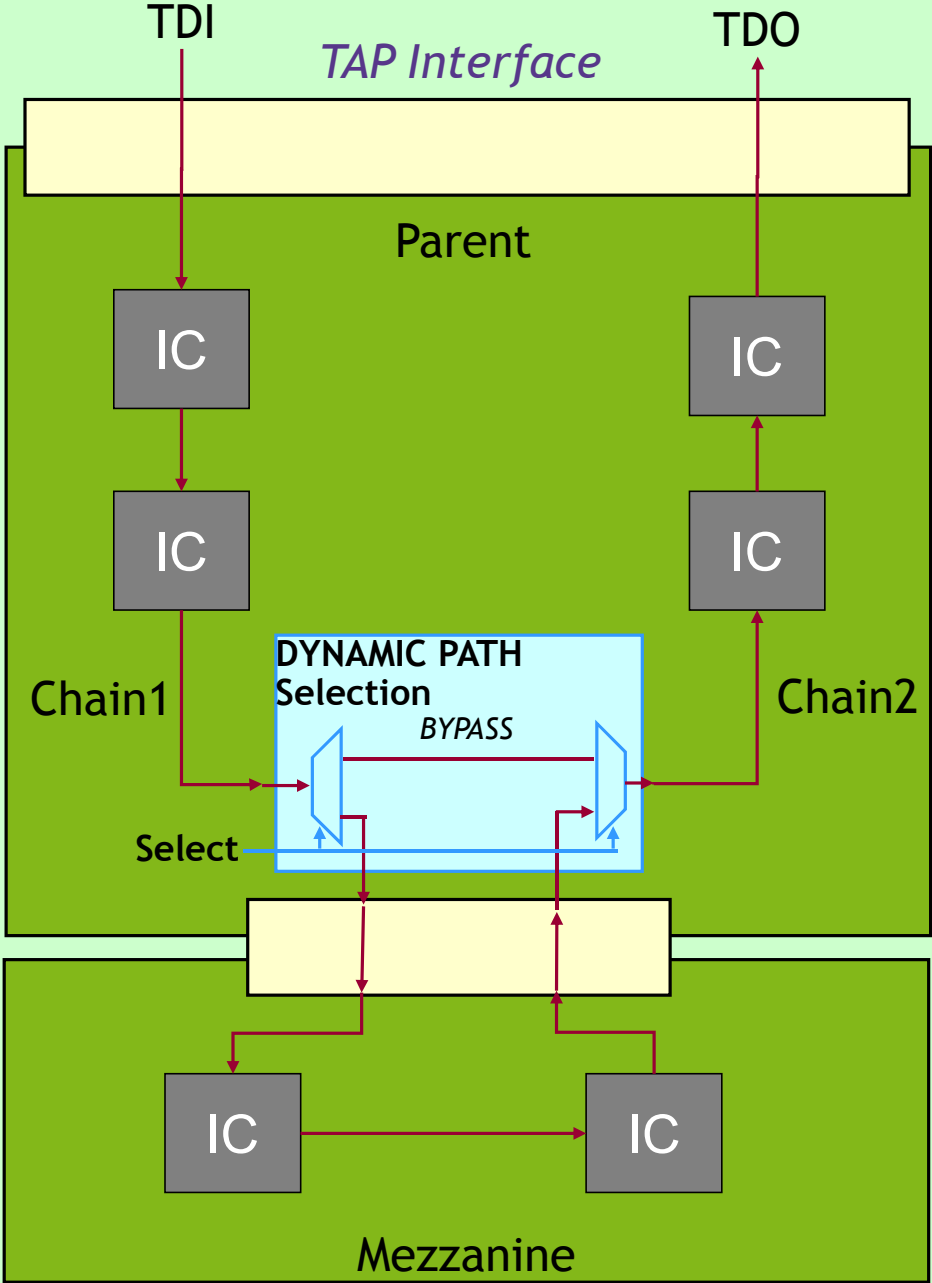
<http://www.sjtag.org/>

Static Path

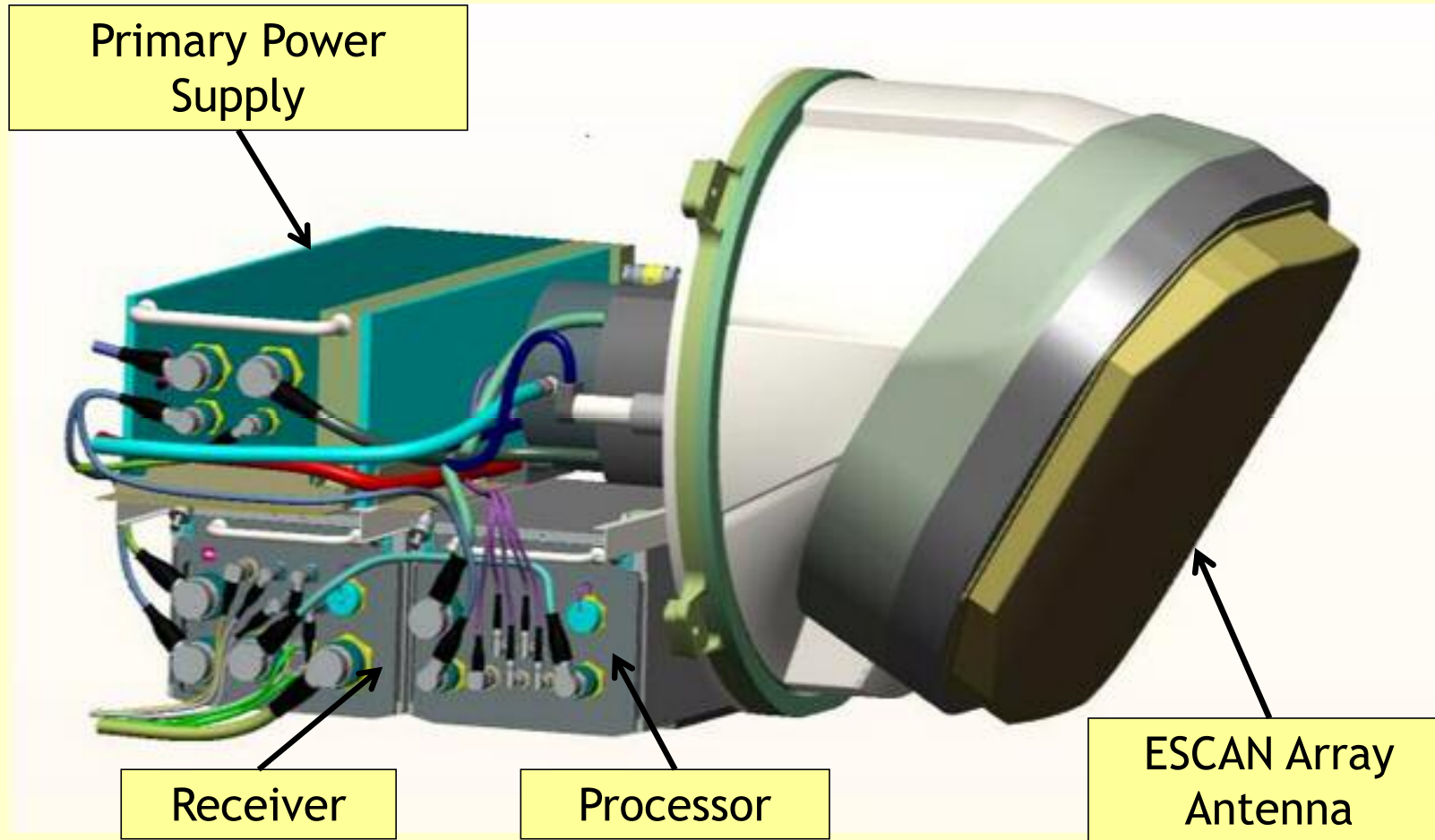


→ Test Data Flow

Dynamic Path



Example - Radar Programming



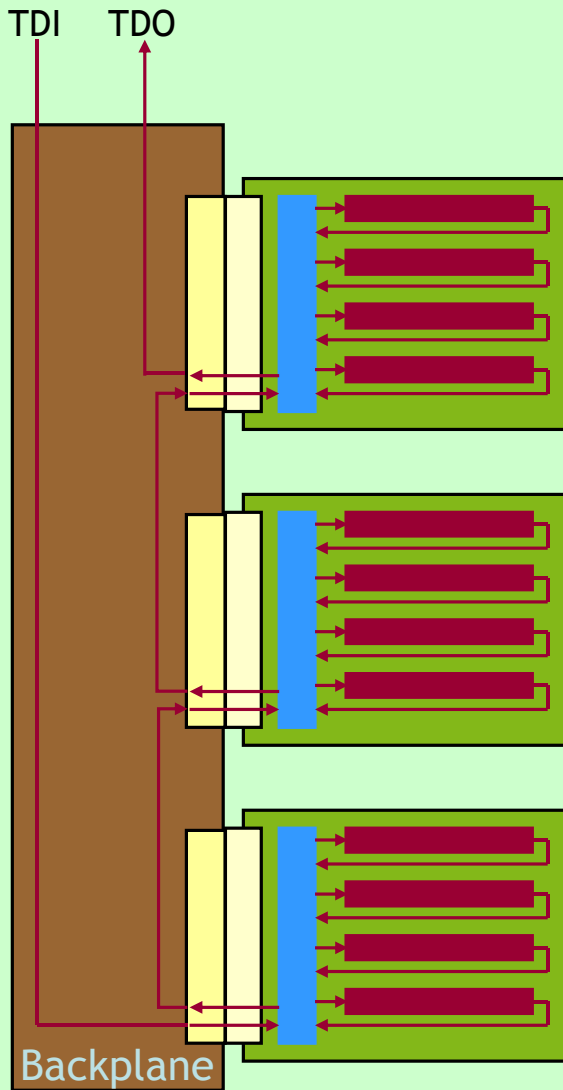
- All firmware must be programmable “covers on”
- All boards are supplied unprogrammed

Have you ever...

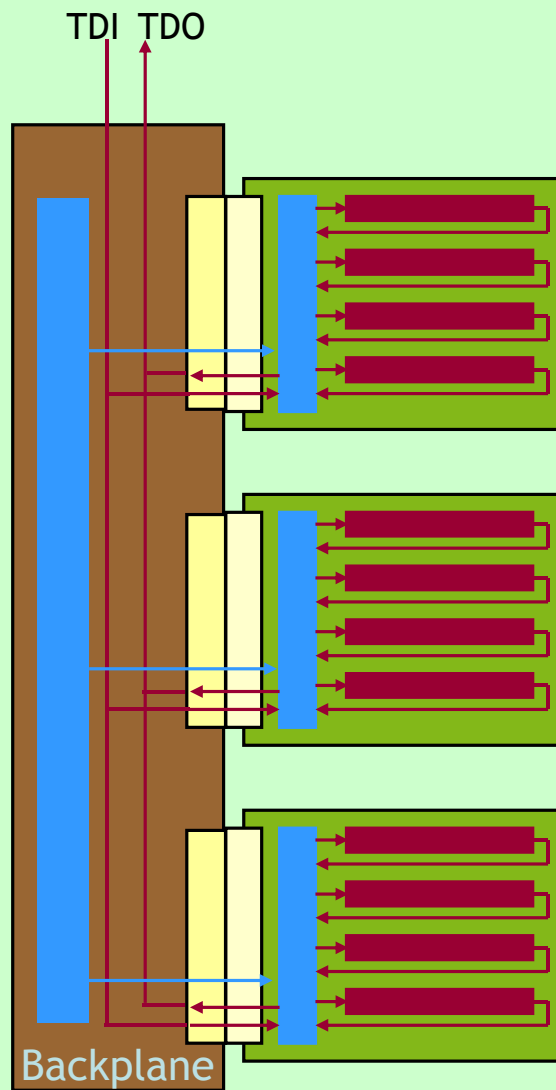
... tried to use BSCAN at the system-level and found that:

- *It was hard to decide on a good scan chain architecture?*
- *The scan chain management devices caused problems with your tools?*
- *Your board-level tests needed a lot of re-work to get them running in the system?*

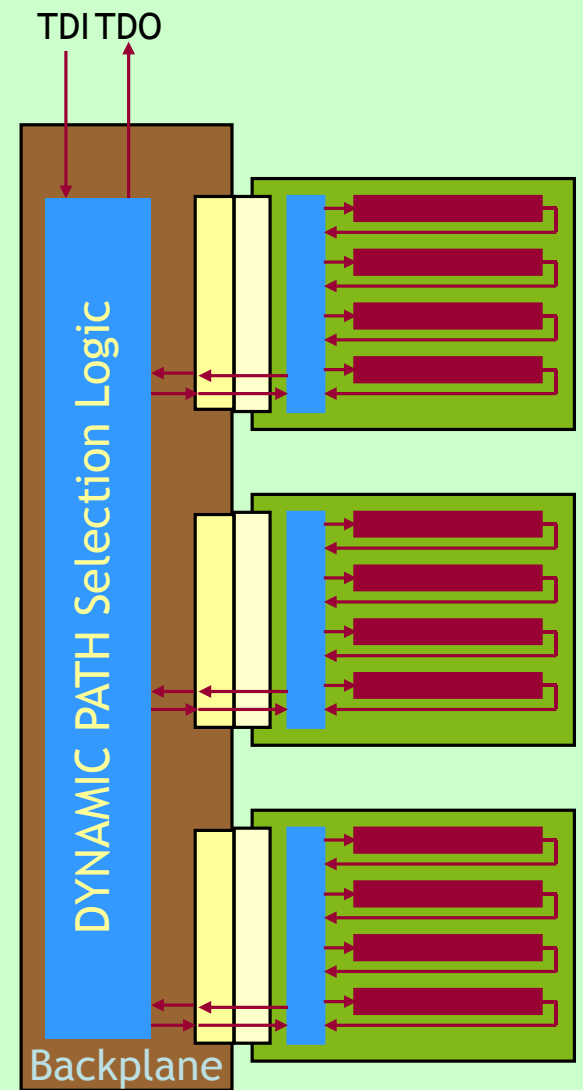
RING/SERIAL SCAN CHAIN



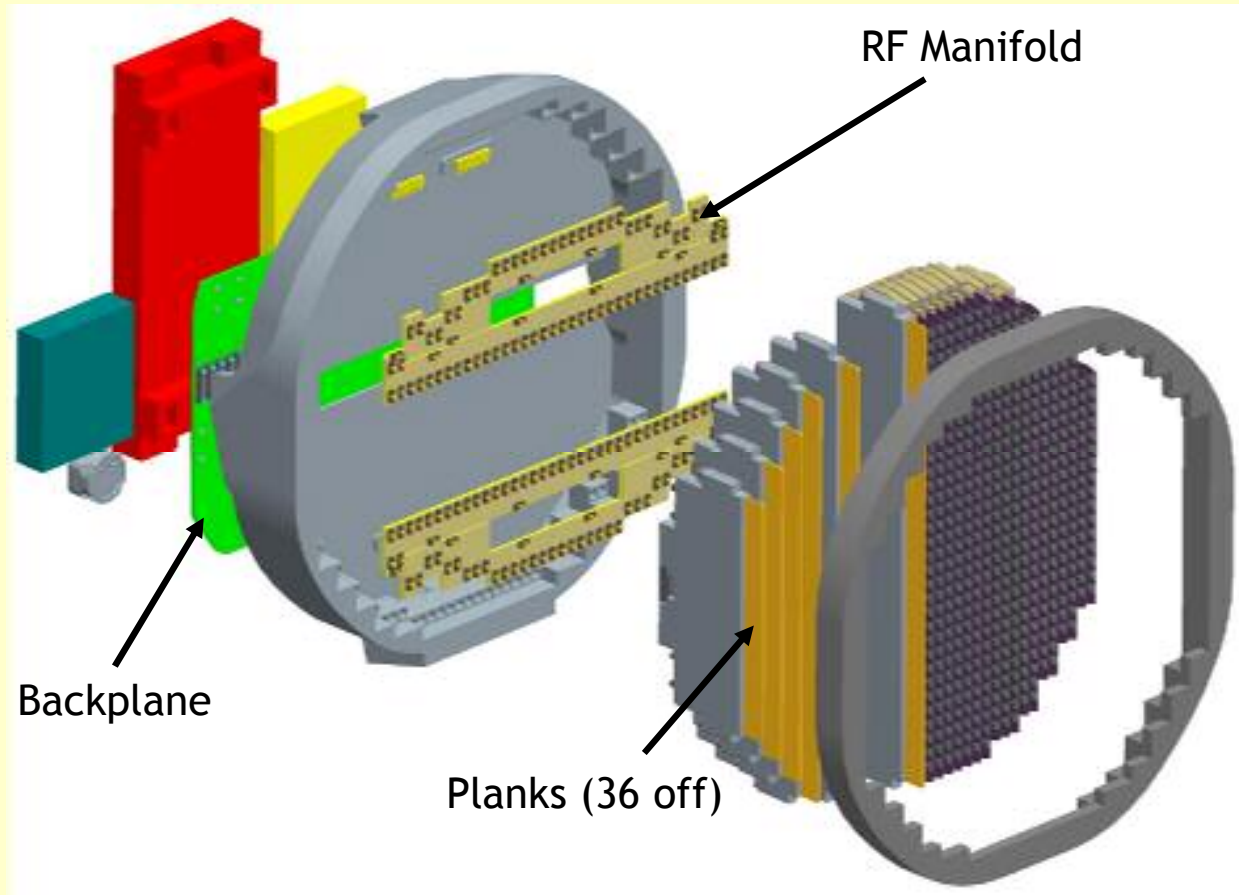
BUS SCAN CHAIN



FULL STAR/FULL RADIAL SCAN CHAIN

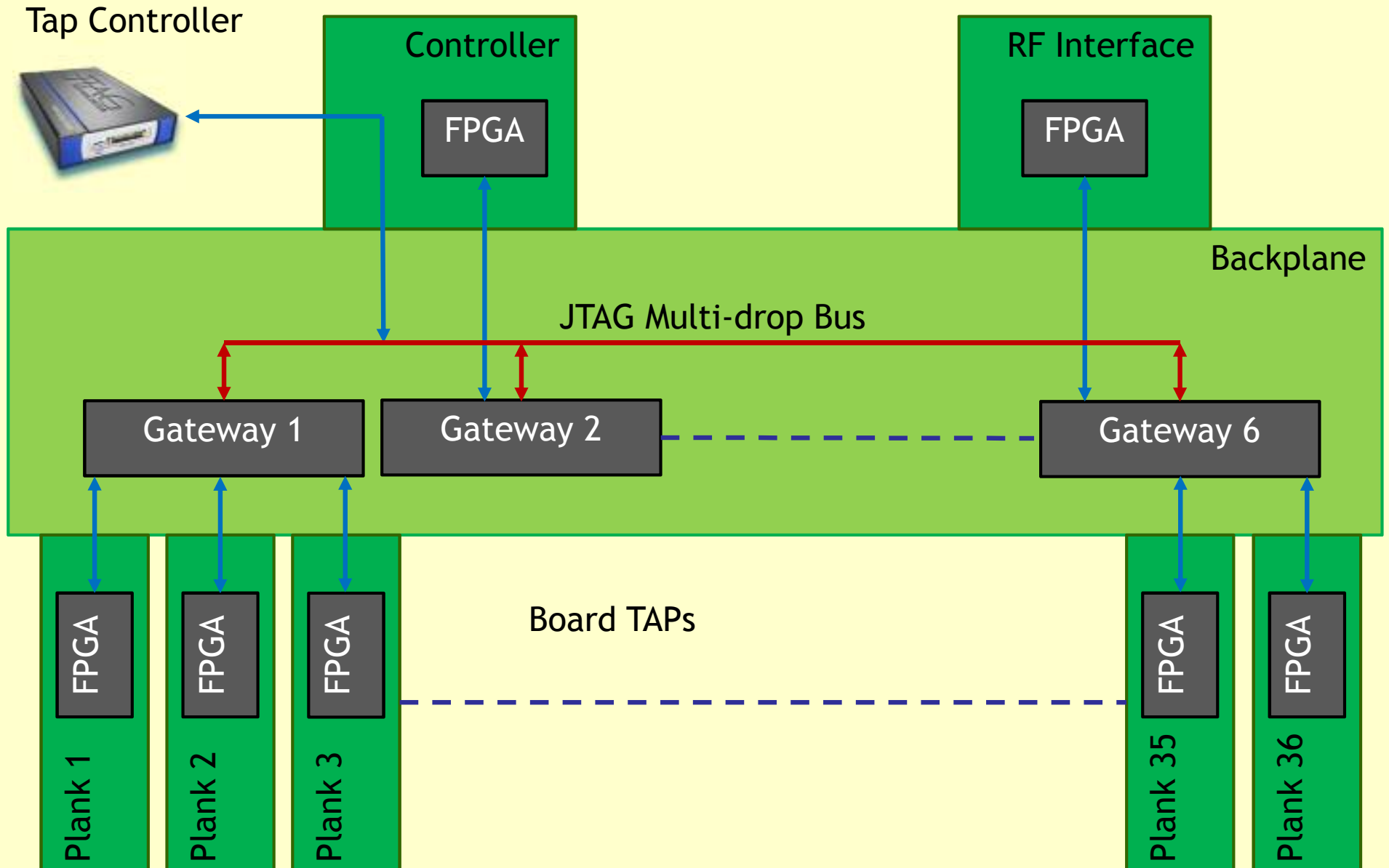


Array Assembly

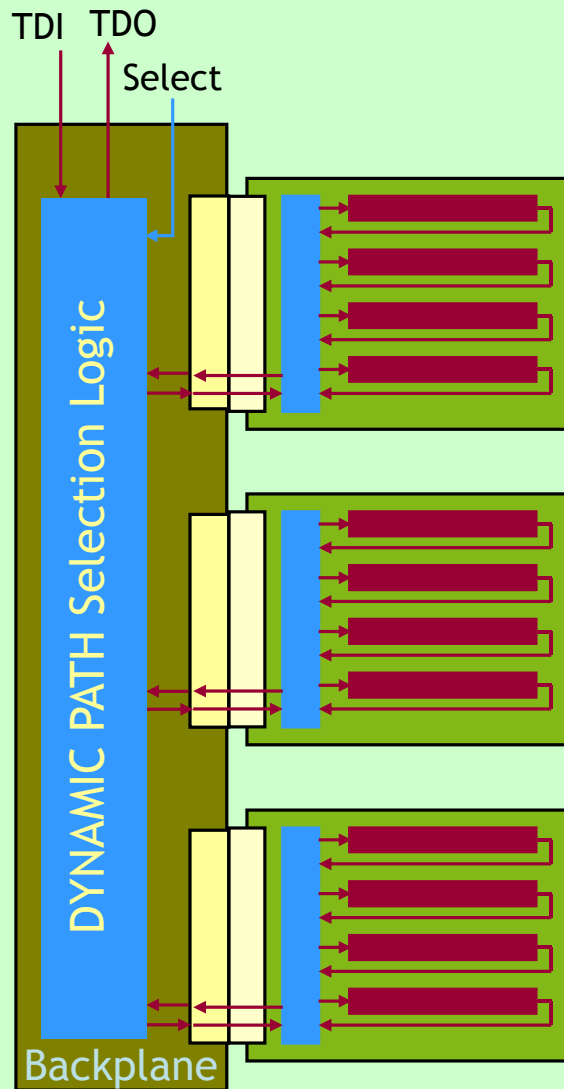


- Antenna has 38 programmable boards on a backplane
- Boards/modules fit to both sides of the backplane
- Test access is via Controller Module on rear of backplane

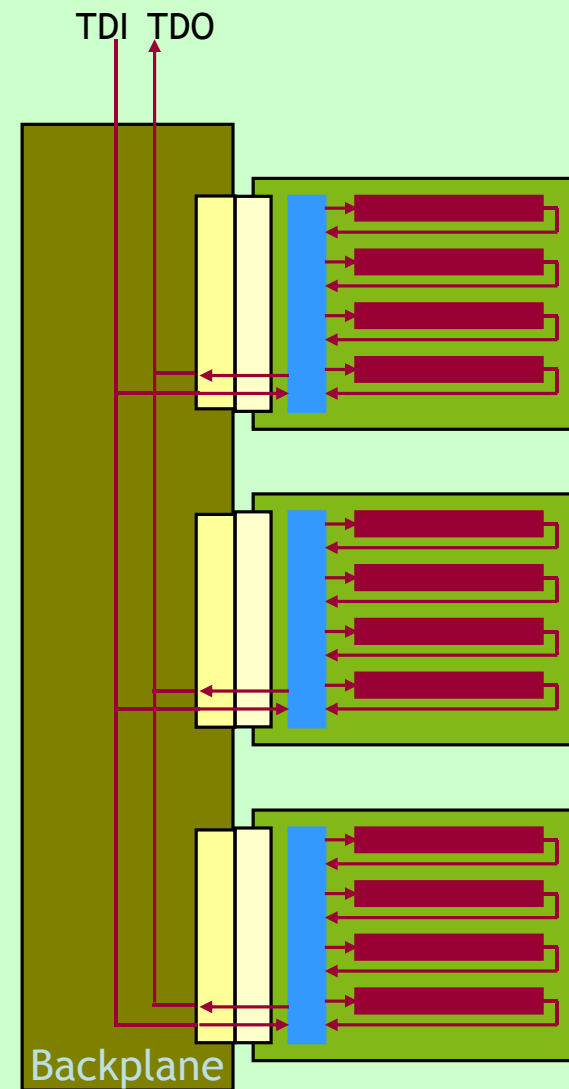
Array JTAG Architecture



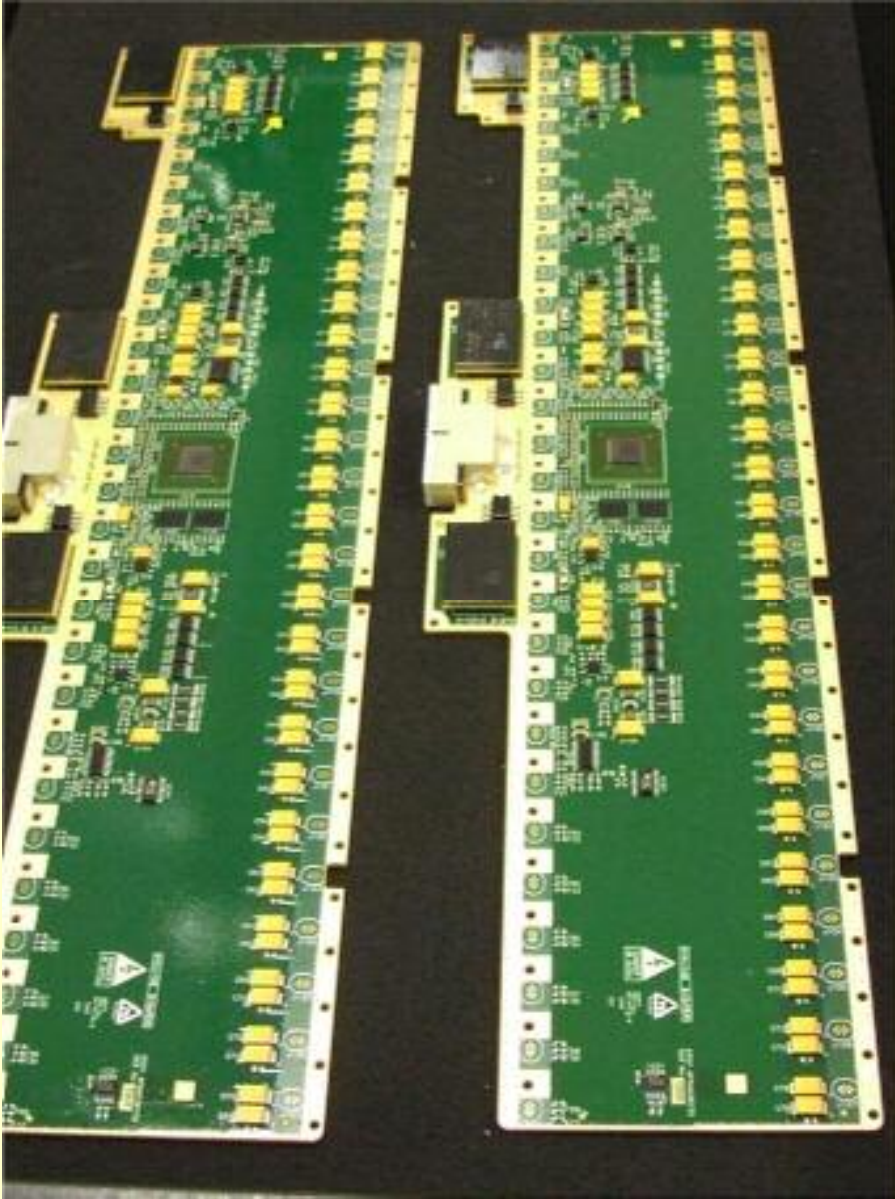
SWITCHABLE STAR/RADIAL



MULTI-DROP



Board Programmability



- Each board typically has at least one FPGA and Config PROM
- Unprogrammed boards can be stocked for any product or customer
- Once operational, boards *could* be programmed by high level protocols
- But first you need to bring the boards to life – JTAG!

Potential and Problems

Potential:

- Example only discusses programming but could relate to Interconnect Test, Device Versioning, etc.
- Tests could be run from an embedded controller as well as externally
- Reduction in requirement for field test equipment
- Common tools/processes for manufacturing test, field test, diagnostics and repair
 - Re-use board tests at system level

Problems:

- Describing a “system” to typical tooling isn’t easy – The system is not usually defined in CAD.
- System may consist of identical FPGAs, some configured some unconfigured
 - Different BSDLS needed
- Usually needs additional hardware: Gateways, Bridges or switches
- Re-using board tests can be complicated because the IO context is different in the system

SJTAG Fringe Meeting

- Open Meeting - Wednesday, Sept. 21
2:00 – 3:00 PM
- Outline Agenda:
 - SJTAG Status
 - User experiences and opinions
- Meeting Room – Ask here or check with
Registration Desk