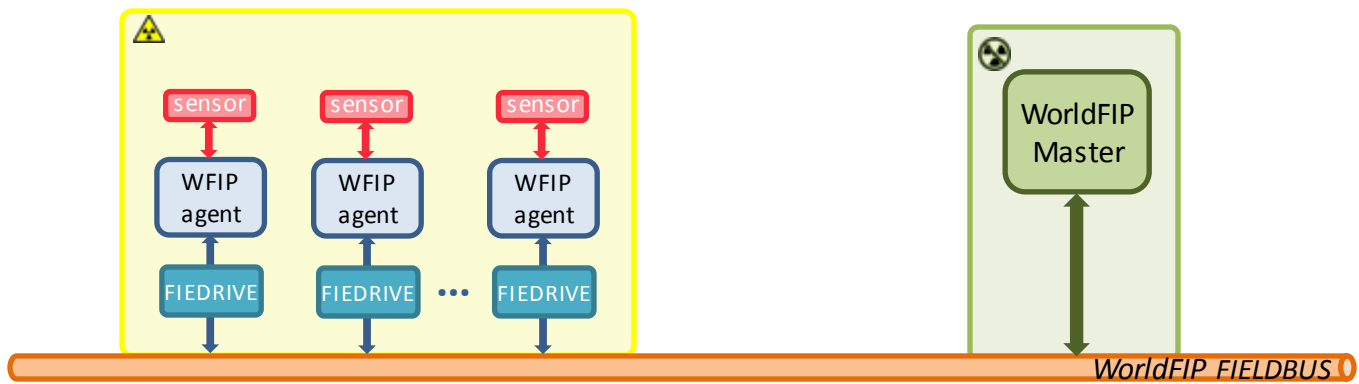




nan•FIP project

FieldDrive Validation





- **4'000** purchased devices
- No information yet on the **number of different batches**
- **Analog** and **digital** part
- Used always in companion with WFIP agent with TID lifetime **400 Gy**



- **No dedicated tests**, but there is some **confidence**
 - Several groups tested at **CNGS, LHC**
 - Parasitically 2 devices at **PSI**; up to 400 Gy and up to 700 Gy

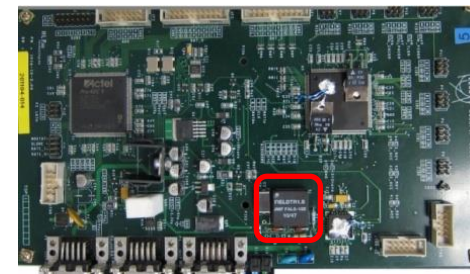
Preliminary Test Plan

Co60 Passive Tests



Passive Tests

- **Steps** at 200 | 400 | 600 | 800 Gy
- For each step **5 devices** per batch
- Devices delivered **at CERN** for validation on NFTC board
- Components and NFTC validation board available in ~ **1 month**



Preliminary Test Plan

Co60 Active Tests



Active Tests

- o Irradiation of **FIPdiag** boards
- o Boards should be failing at WFIP agent lifetime **400 Gy**
- o 10 boards available





WorldFIP

Preliminary Test Plan Co60 Active Tests Setup



Control Room

Master



FIELDBUS



WorldFIP

Preliminary Test Plan Co60 Active Tests Setup



Control Room

Master



FIELDBUS



WorldFIP

Preliminary Test Plan Co60 Active Tests Setup



Control Room

Master



FIELDBUS

Preliminary Test Plan

Co60 Active Tests Setup



Control Room



50m 9V

50m USB

Master



FIELD BUS



WorldFP

A large, blurred funnel-shaped graphic in the background, tapering from top to bottom. The top edge is reddish, the middle is purple, and the bottom is yellow. The funnel is set against a light blue background.

Extras



- Study of failures of the **digital** parts
 - **PSI** targeted beam
 - ~**5** nanoFIP test boards



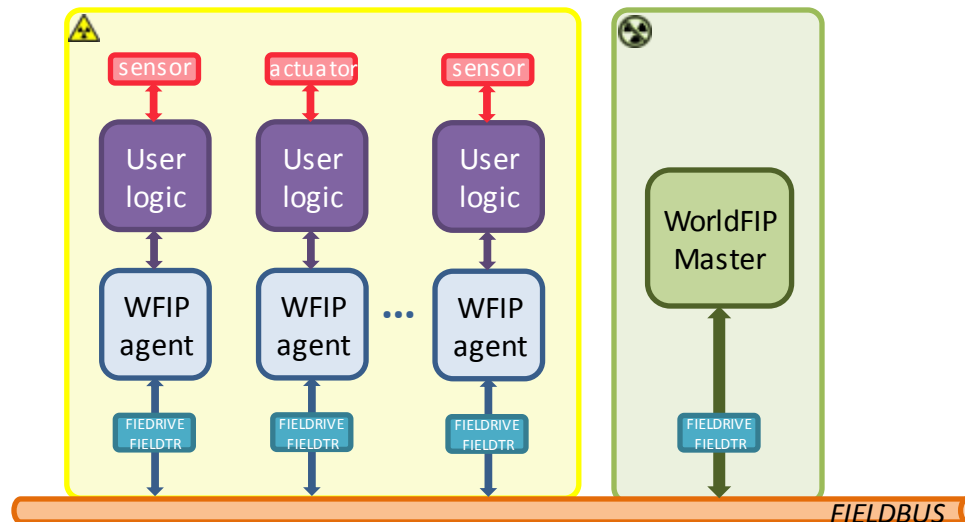
- Study of failures of the **analog** parts
 - **Fraunhofer**; irradiation of **complete boards**
 - ~**5** nanoFIPdiag boards



WorldFIP, microFIP & nanoFIP (I)

- WorldFIP is a **real-time fieldbus** used at CERN's LHC for a variety of control systems: Cryogenics, Power Converters, Quench Protection, Beam Instrumentation, Radiation Monitoring, Survey
- More than **10000** WorldFIP client **nodes** (agents) and **200** WorldFIP **master** nodes installed in the LHC
- WorldFIP was selected because of the good performance of its agents under **radiation**

WorldFIP Architecture



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WorldFIP Architecture

