CAN @ Airbus

Telecom Perspectives

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Agenda

Landscape of CAN bus in Airbus DS Telecom Directorate

- Payload Serial Bus
  - Aims and characteristics
  - Development status

- Platform Modules Communication Bus
  - Aims and characteristics
  - Development status

- Discussion

Telecom Payload Serial Bus

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Payload Serial bus

Aim and characteristics

Telecom Payload Serial bus saves discrete TM/TC budget and harness

It improves commandability and observability of the repeater

It gives efficient operability of the payload

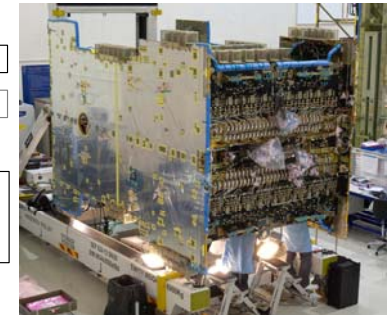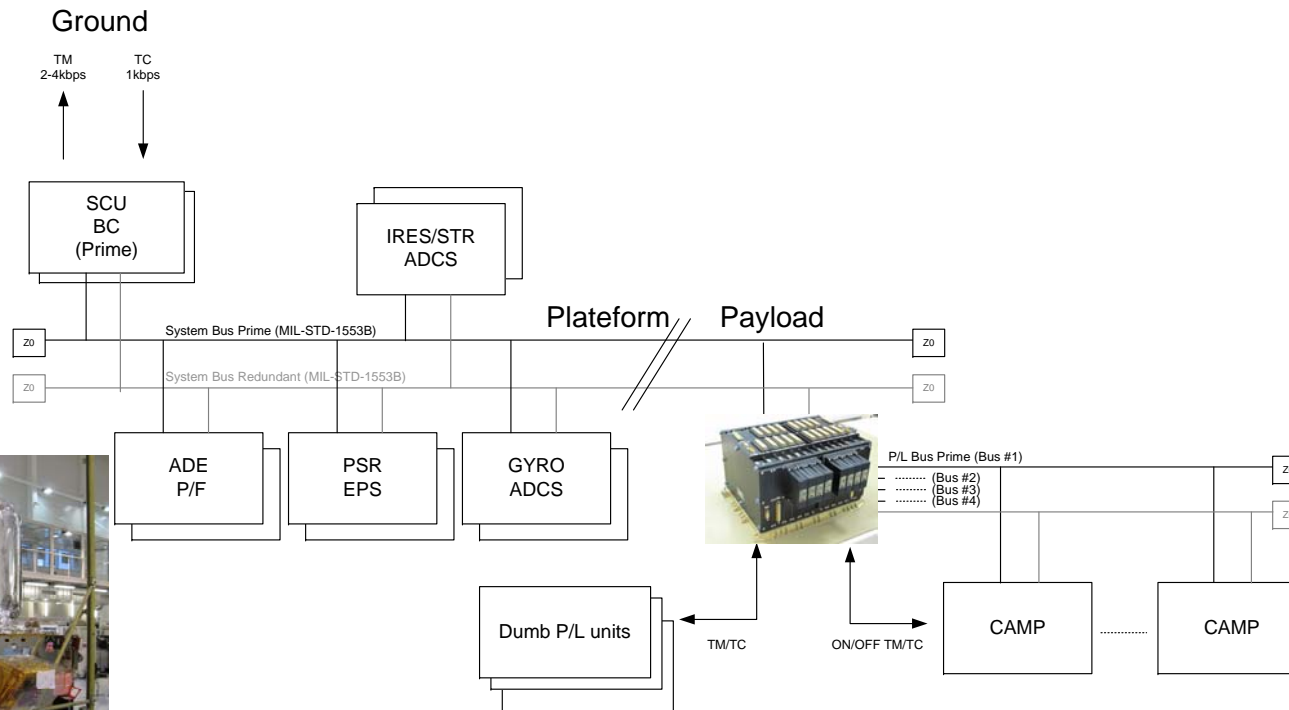During decades Airbus used proprietary serial bus : LSSB

With drawbacks : limited datarate and number of nodes, non optimized harness (5 pairs per bus), proprietary definition leading to specific development effort at suppliers side.

CAN bus is replacing LSSB with

- Improved datarate (250kb/sec),
- Increased number of nodes up to 64,
- Simplifies harness single pair per bus,
- relies on established standard.

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Payload Serial bus

Ground

TM
2-4kbps

TC
1kbps

SCU
BC
(Prime)

IRES/STR
ADCS

Plateform   Payload

Z0   System Bus Prime (MIL-STD-1553B)   Z0

Z0   System Bus Redundant (MIL-STD-1553B)   Z0

ADE
P/F

PSR
EPS

GYRO
ADCS

P/L Bus Prime (Bus #1)
.... (Bus #2)
.... (Bus #3)
.... (Bus #4)

Z0

Z0

Dumb P/L units

TM/TC

ON/OFF TM/TC

CAMP   ....   CAMP

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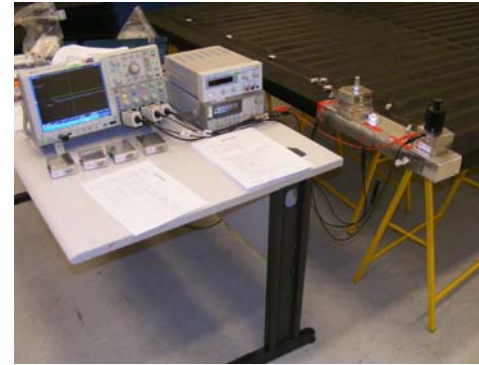
Payload Serial bus

Developpement Status

✓ Physical Layer validated by test and analysis

✓ MPIU with CAN interface has been developed and qualified

✓ System Validation tests done with flight representative Nodes

✓ NEOSAT CAN bus AD Issue 02 will be soon released

✓ MPIU with CAN interface is proposed for commercial bids

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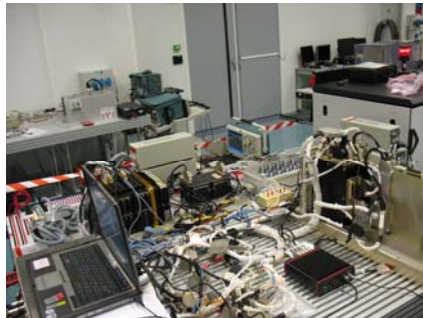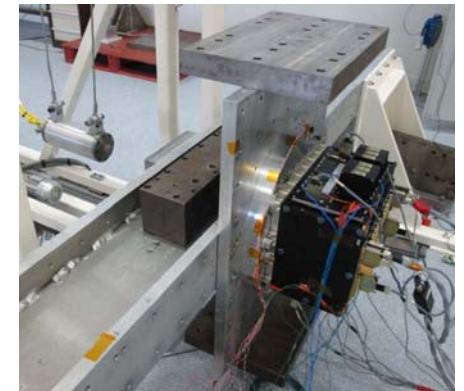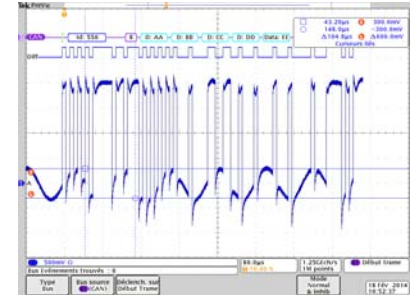
Eurostar Neo

Platform Modules Communication Bus

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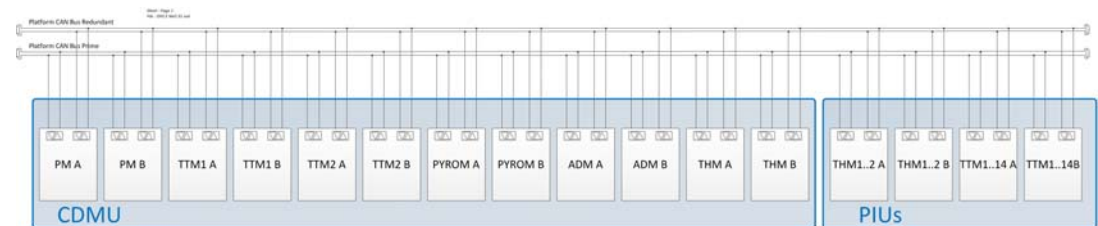
Platform Modules Communication Bus
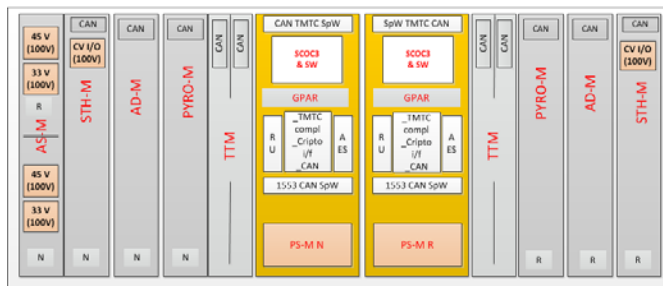
Aim and characteristics

Airbus DS is developing its new Telecom platform.

DHS units use CAN bus to connect I/O modules with the processor module

- Datarate : 1Mb/sec
- Bus length : <= 15 meters
- Nodes : <= 44
- Protocol : Neosat

Platform Modules Communication Bus

Developpement Status

✓ Physical Layer under validation

✓ Modules under development (Processor Module/Can bus master ready)

✓ System Validation 2016

✓ First launch End 2019

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Discussion

Proposed topics for discussion

- ECSS CAN should be updated to consider the now available integrated transceiver and for simple networks the Neosat applicable document.

- Are we ready to start the CAN bus Handbook for space applications ?

- Need for retransmission with Time Triggered protocol.

- 3.3V transceivers is not the usual in automotive -> Commercial probes with representative transceivers ?

- And if we have (a lot of) time in front of us, CAN bit timings : the right setting

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