

Aurelia Microelettronica

Micro-Art of Technology

- *FPGAs*
- *ASICs*
- *BOARDS*
- *Rad-Hard*

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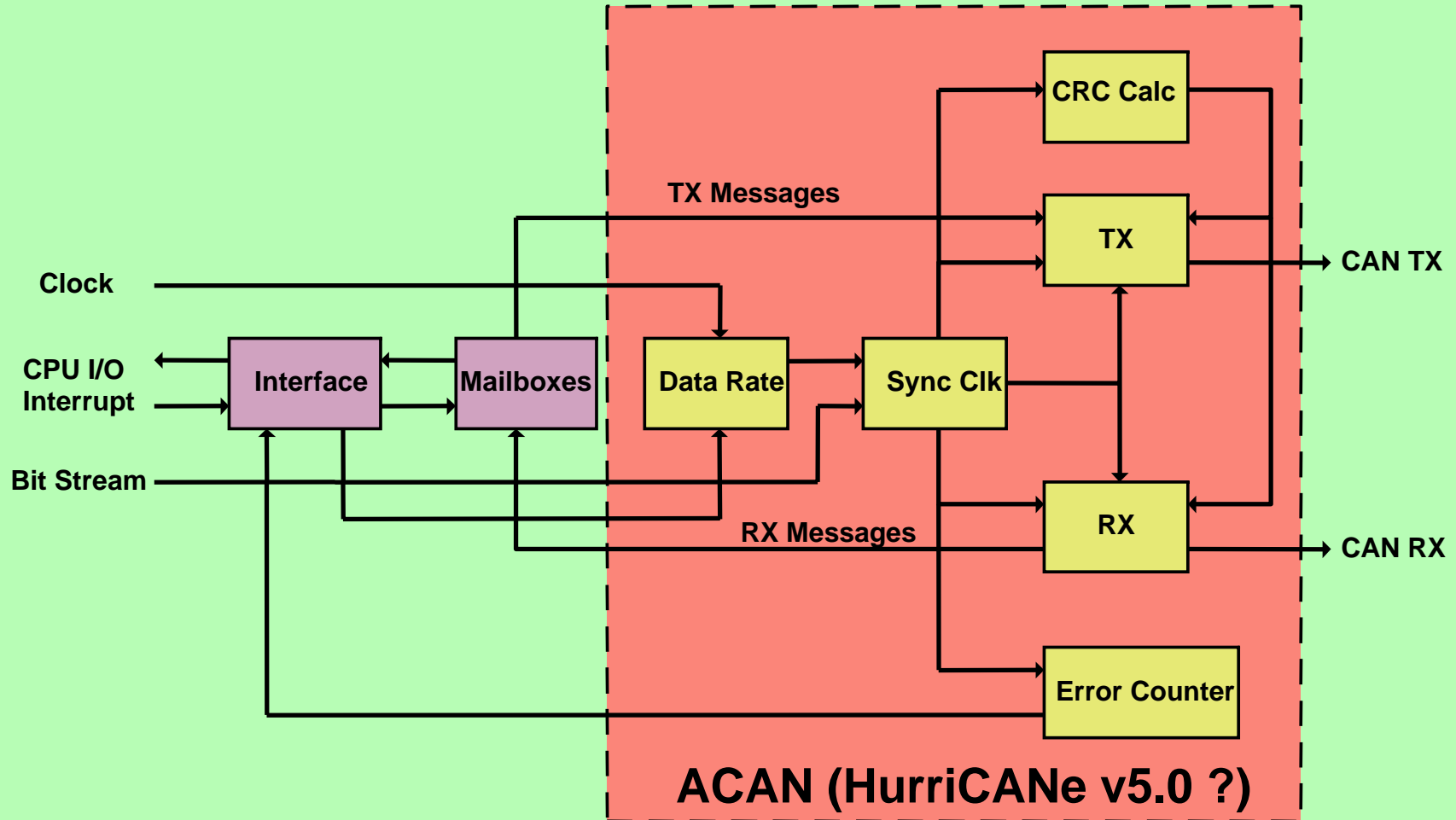
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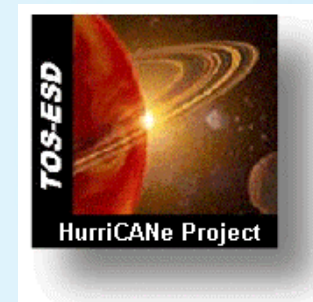
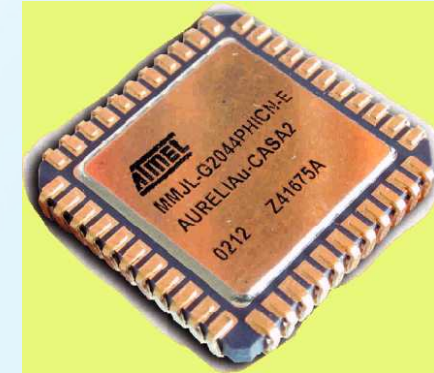
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- **Main Projects:** ATV, Pamela, ASI projects, IPPM (by ESA)
- **Main Developments:**
 - Centre of Competence for ATMEL DMILL technology
 - CASA2: first CAN bus controller for space application (MG2RTP ATMEL rad-hard technology)
 - SSPII: 12bit, 5MHz ADC (DMILL technology)
 - SELP: Single Event Latch-Up protector (DMILL technology)
 - **CAN bus transceiver compliant to ISO 11898 standard**
- **Capabilities:**
 - Design of mixed signal ASIC in rad-hard technology
 - April 2003: Aurelia becomes the European Aeroflex/UTMC Design Centre (collaboration agreement)
 - VHDL development and fitting on UTMC rad-hard FPGA
 - Access to irradiation test facilities

- **Starting in 1999: release of the ALPHA 1.1 provided by ESA**
 - CAN 2.0B protocol partially implemented
 - Overload and Remote Frames not supported
 - Not continuous synchronization but only at message starting
- **Middle of 2000: first ASIC prototypes**
 - DMILL CMOS 0.8 μ m process
 - Standard CPU parallel interface
 - Some bugs in protocol management
- **End of 2000: collaboration with Alenia Spazio and Russian Space Agency to develop a new CAN bus controller (CASA2) for ATV (Automated Transfert Vehicle) programme**
 - CAN 2.0B protocol fully compliant
 - 8-bit programmable 8051 interface
 - Successfully passed VHDL BOSCH testbench
- **2003: the new HarriCANe CAN core version (HurriCANe 5.0 ?) has been delivered to ESA**
- **2004: CASA2 has been used in an Italian Space Agency project (CASTA) with embedded micro-controller (8051) and other peripherals**



- **2002: CASA2 has been licensed to ATMEL (PN: AT7809E)**
- **ATMEL MG2RTP Rad-Hard Sea of Gate**
 - Error handling and Stuff bit generation
 - CRC and ACK generation
 - Interrupt on:
 - ✓ Telegram sent/received successfully
 - ✓ Buffer overflow receiving
 - ✓ Bus off condition
 - ✓ Error passive condition
 - Operating Frequency 16 MHz, FC-SSA: 99.79%
- **Since 2002 has been used CASA2 in:**
 - 150 Electrical Model on RT ACTEL FPGA
 - 44 Engineering Model ASICs
 - 1330 Flight Model ASICs



Aurelia is ATMEL technical reference for what concerns CASA2. Up till now any anomalies has not been detected

Comment: Difficult to follow the IPs version evolution