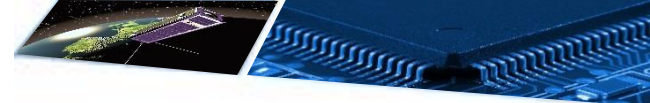




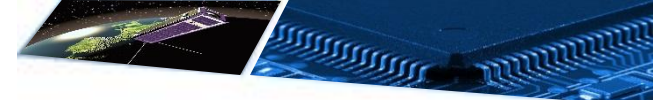
Universidad
de Alcalá



Space Research Group (SRG-UAH) OBDH



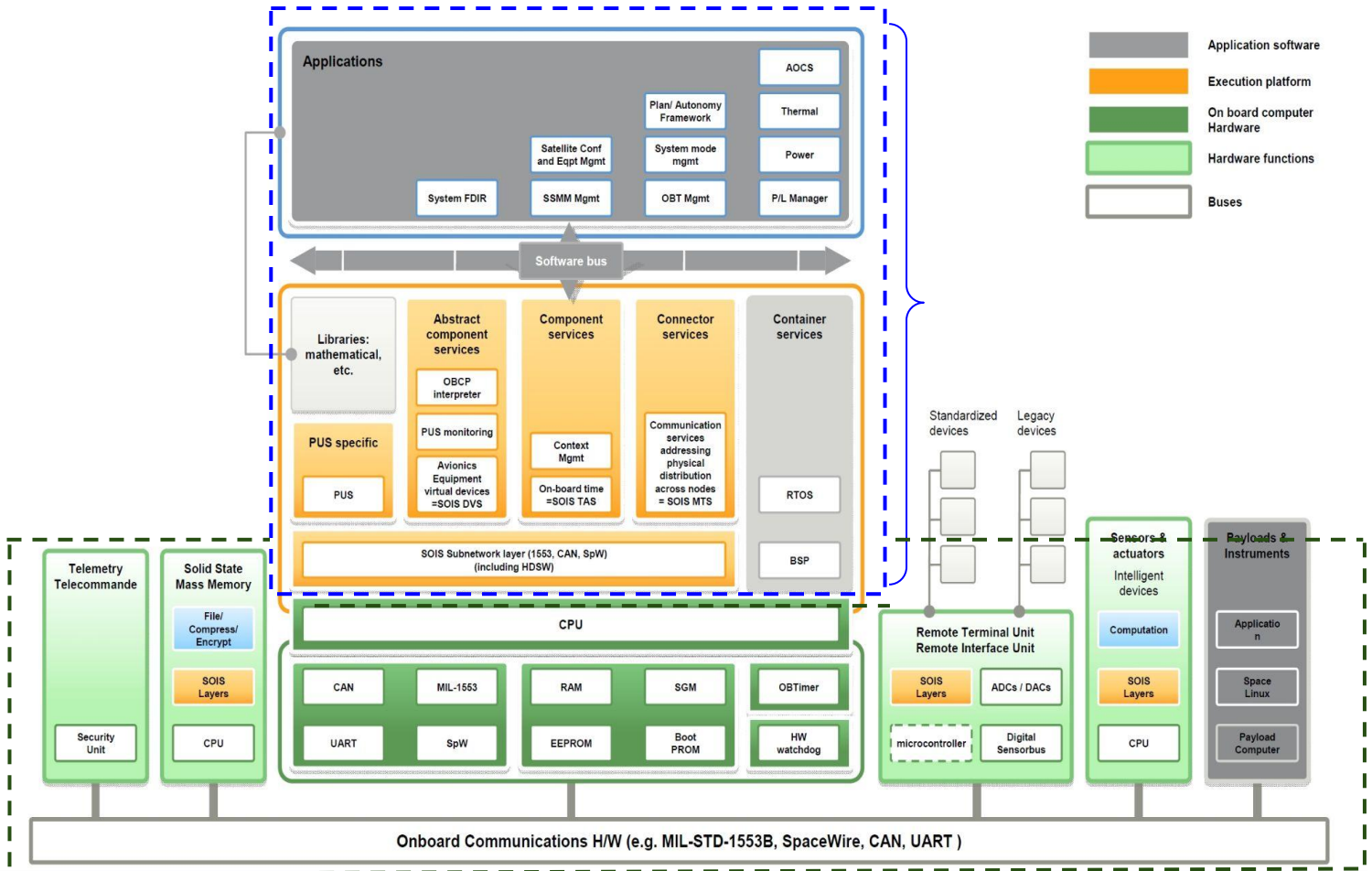
Jornada Ciencia e Industria

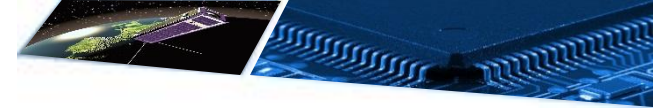


OBDH

OBSW

OBCDH



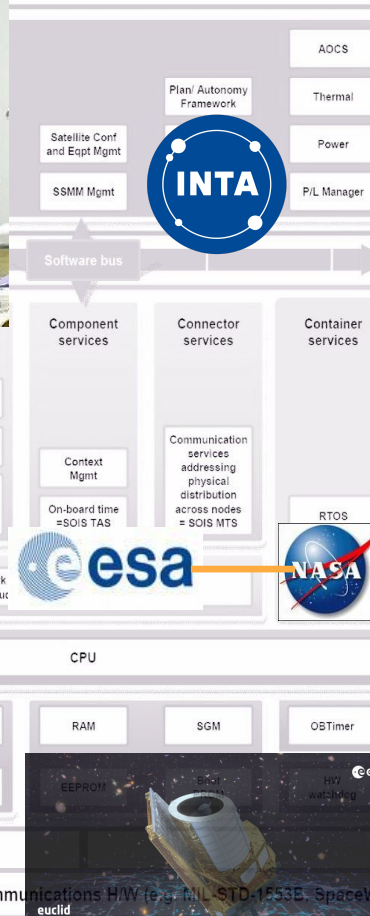


OBDH

OBSW

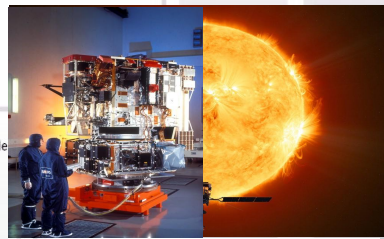


Nanosat 01
2004



Nanosat 1B
2009

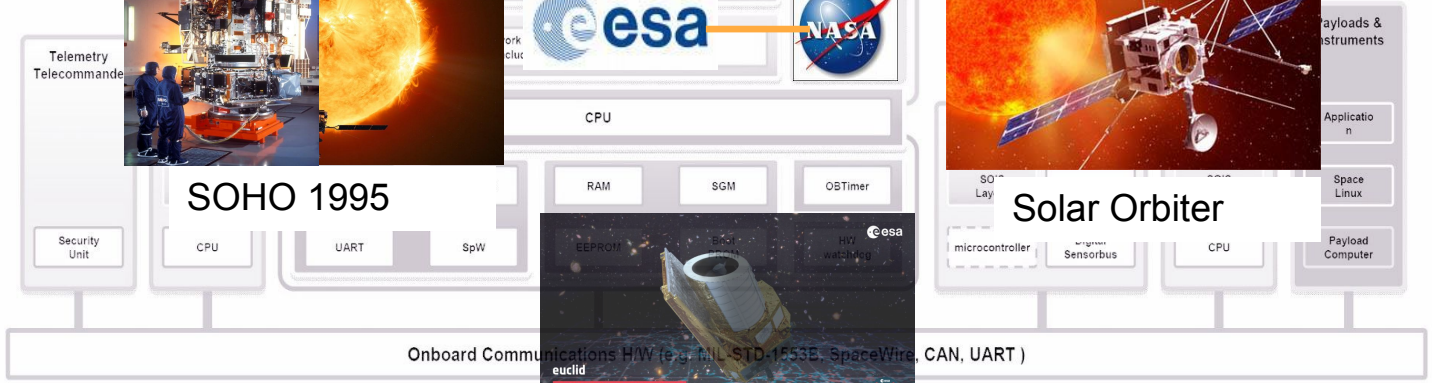
OBCDH



SOHO 1995

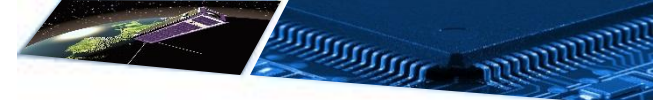


Solar Orbiter

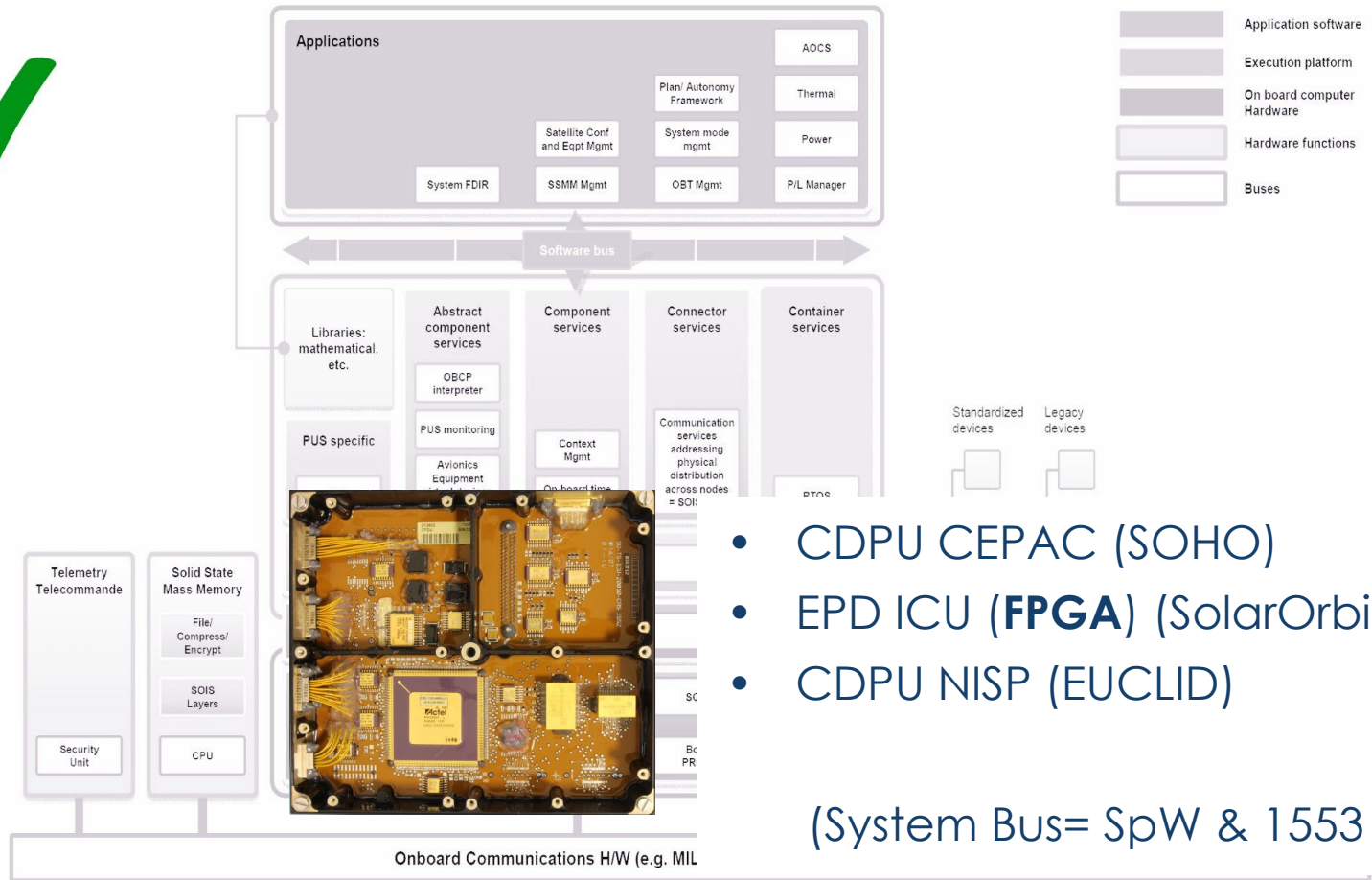


Euclid 2023





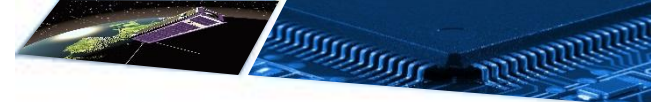
OBCDH



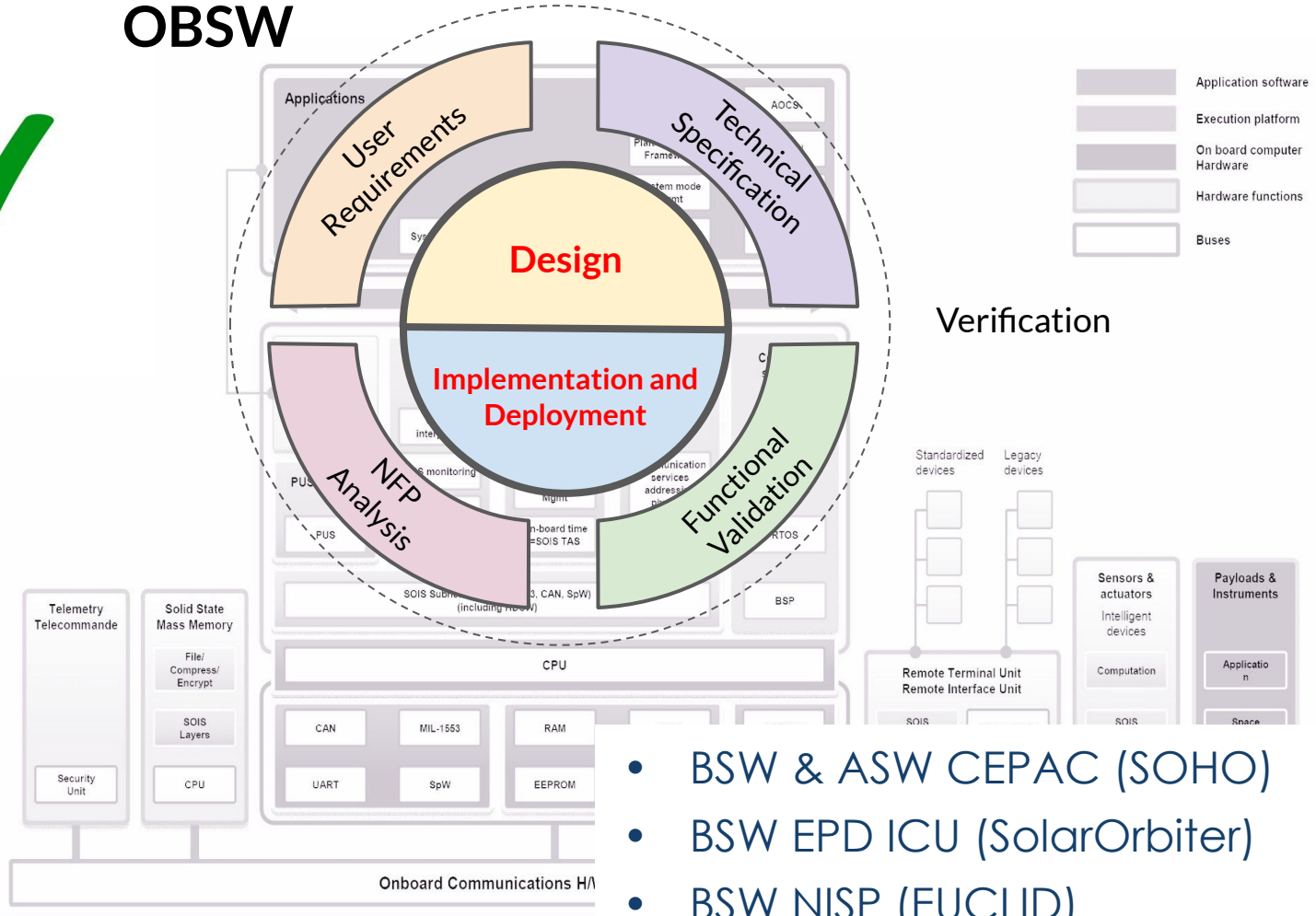
- CDPU CEPAC (SOHO)
- EPD ICU (**FPGA**) (SolarOrbiter)
- CDPU NISP (EUCLID)

(System Bus= SpW & 1553)



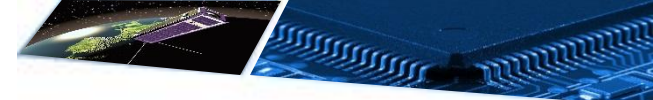


OBSW

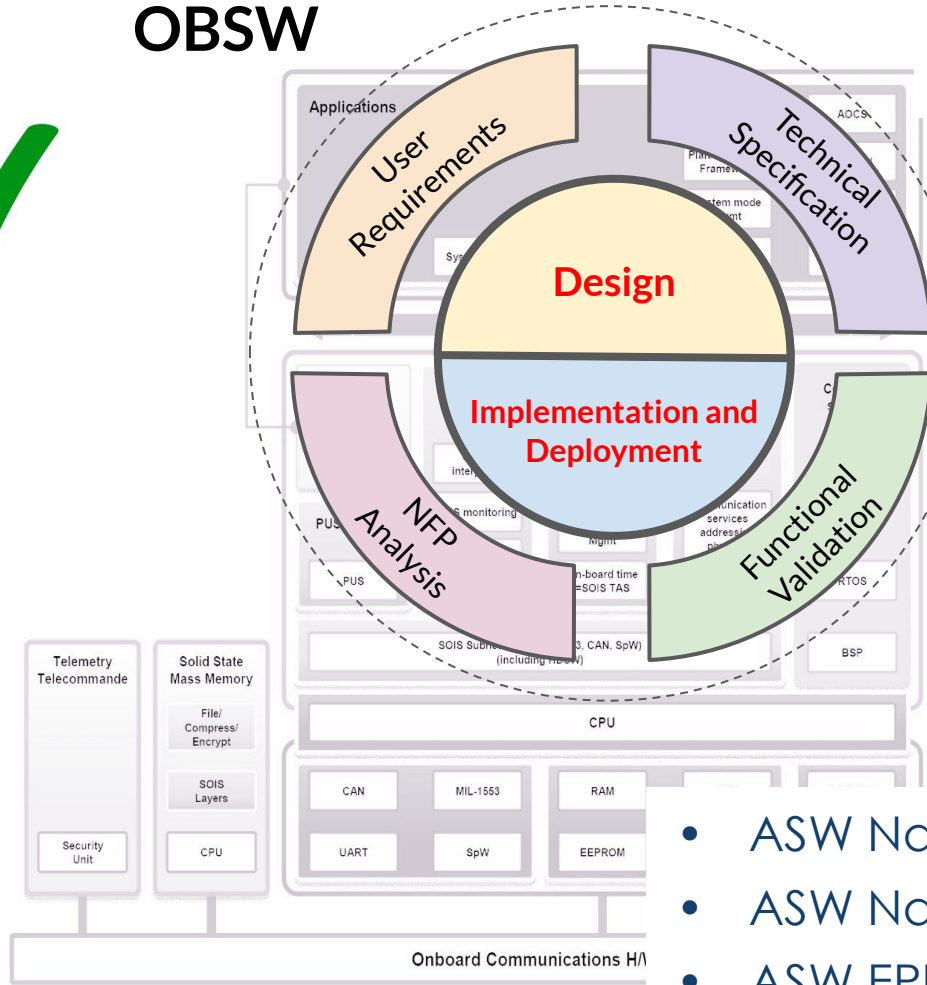


- BSW & ASW CEPAC (SOHO)
- BSW EPD ICU (SolarOrbiter)
- BSW NISP (EUCLID)

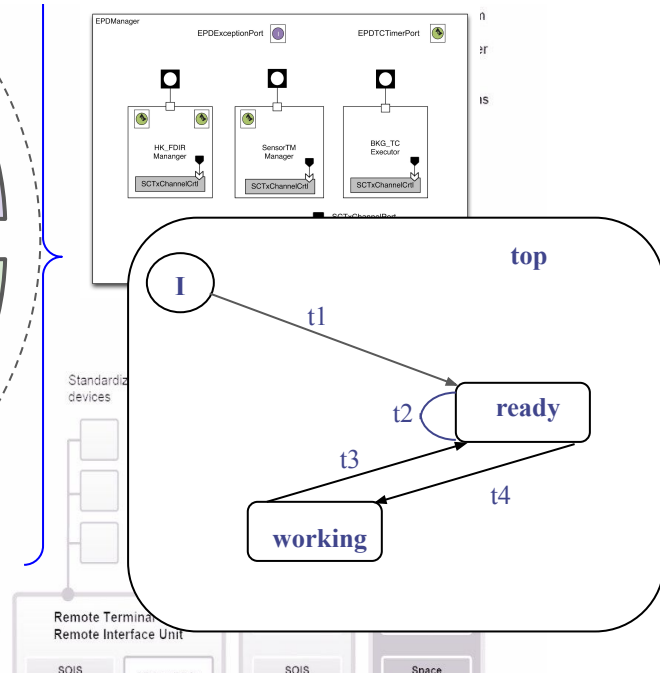




OBSW

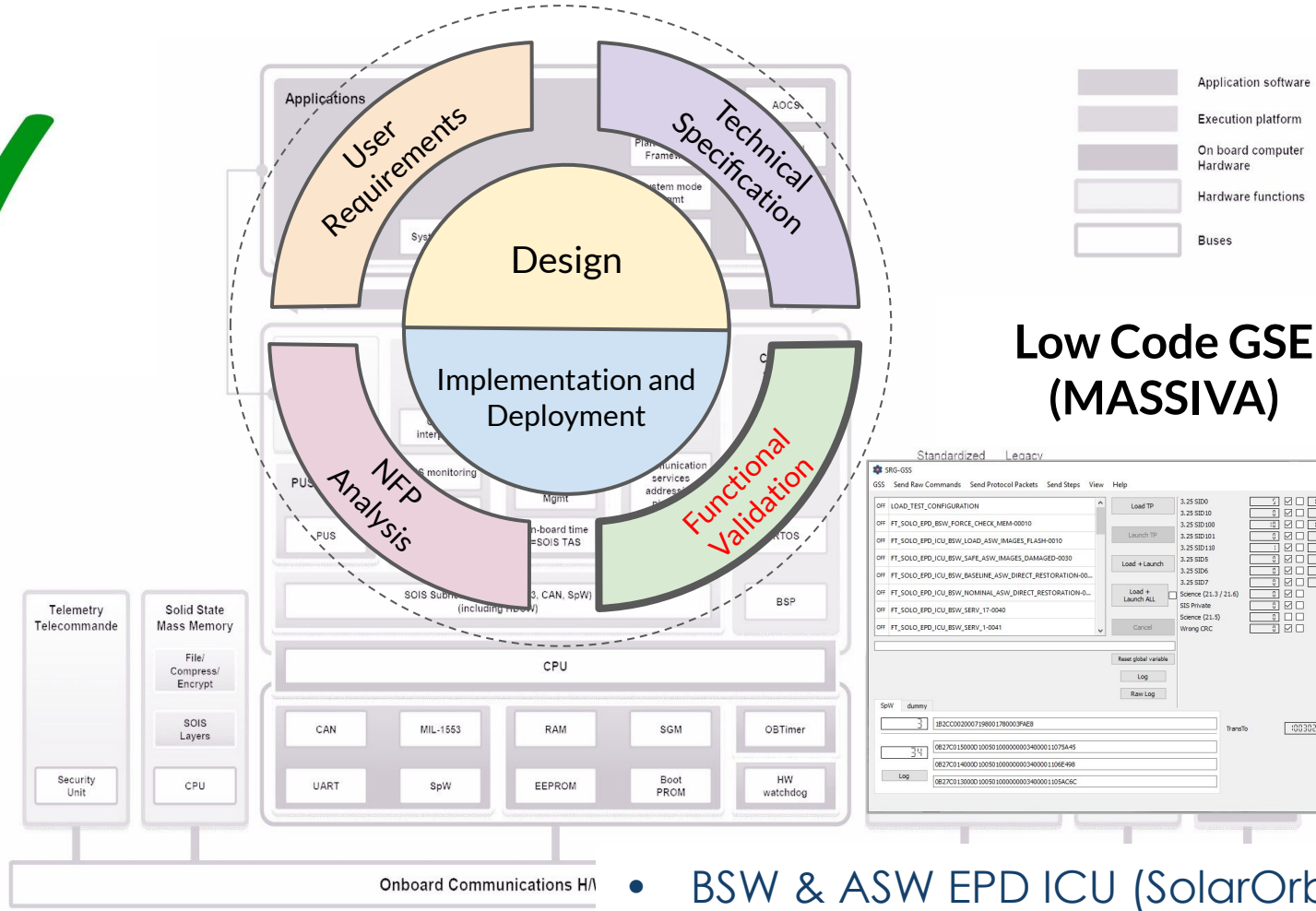
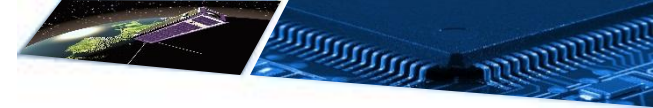


CBSE (Automatic Code Generation)

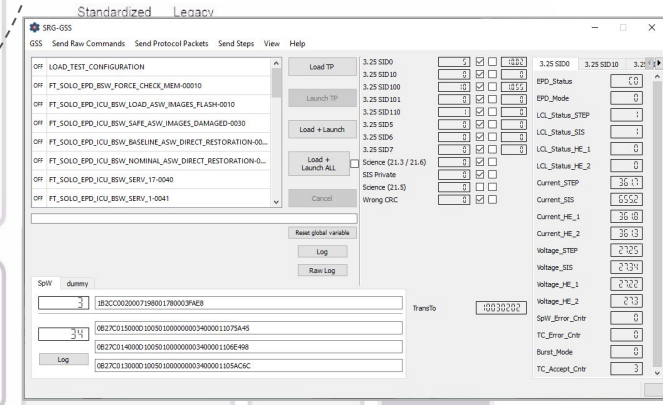


- ASW Nanosat-01
- ASW Nanosat-1B
- ASW EPD ICU (SolarOrbiter)



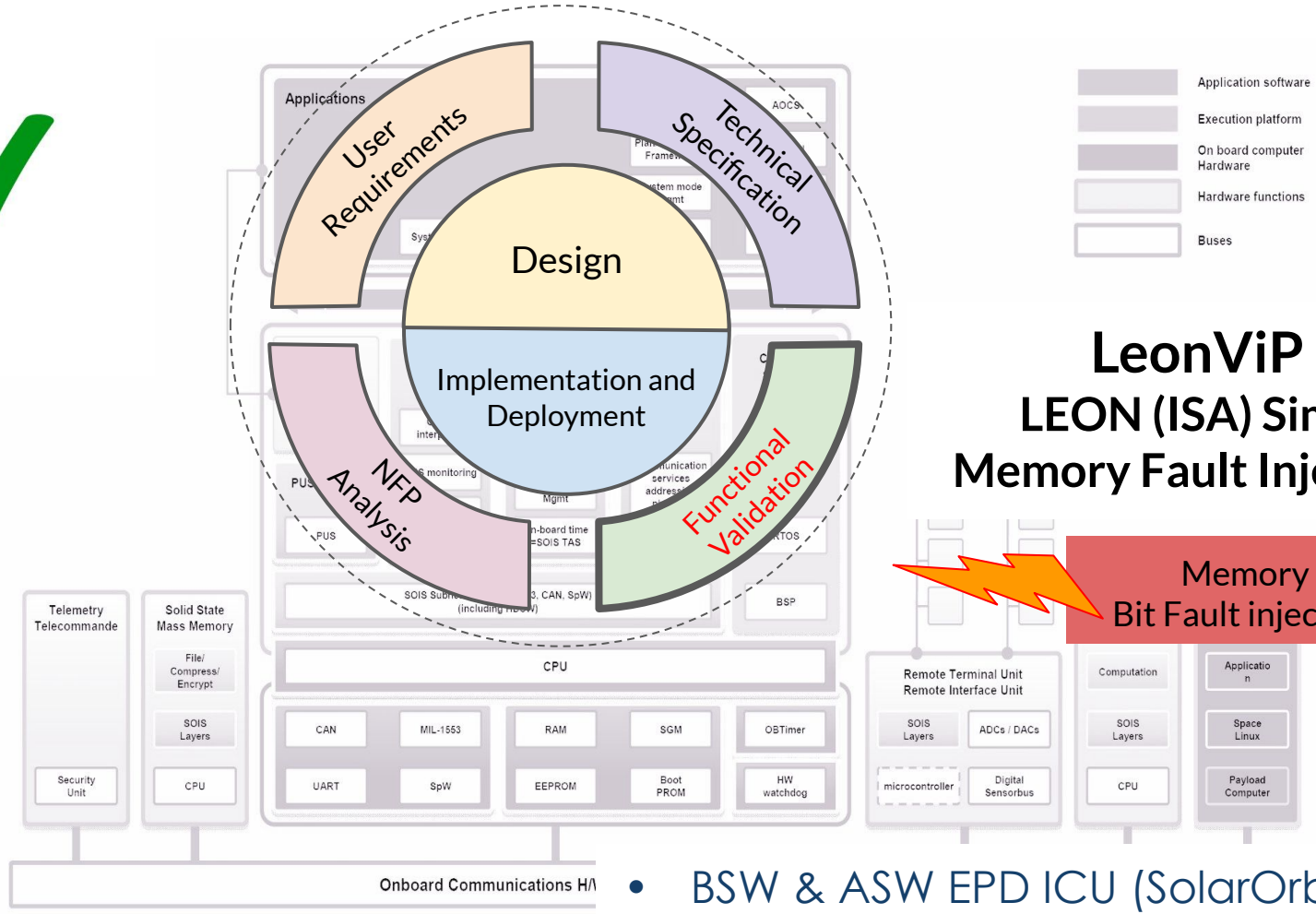
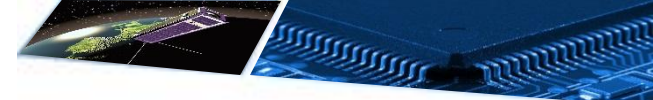


Low Code GSE (MASSIVA)



- BSW & ASW EPD ICU (SolarOrbiter)

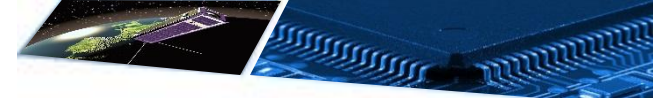




LeonViP LEON (ISA) Sim + Memory Fault Injection

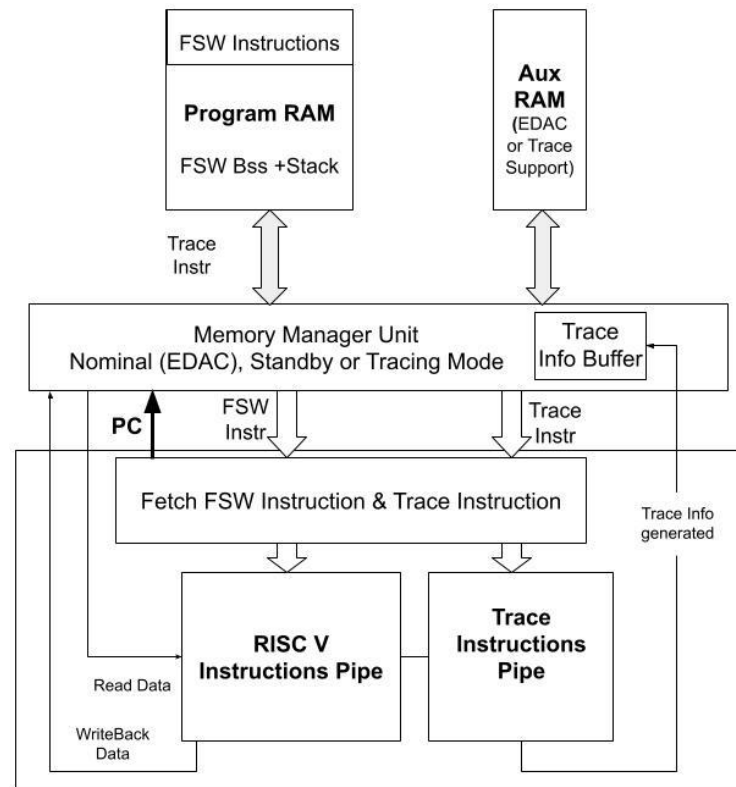
- BSW & ASW EPD ICU (SolarOrbiter)





In progress

- LEON3 Virtualization extensions (**GMV-Air HyperVisor**)
- MMU **Stuck bit Fault Tolerant** (FPGA-IPcore)
- RISC-V **VHDL**
 - Performance Monitor Unit
 - Non-Intrusive Trace Pipeline (**patented**)





In progress



Termina (Domain-Specific Programming Language)



Schedulability Model

annotate

Termina source code

transpile

C

Termina runtime

RTOS

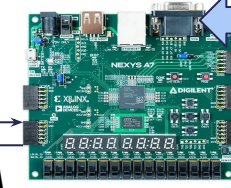
MISRA-C 2012
C11 Language
version

Load program binary

WCET trace config via PUS TC&TM

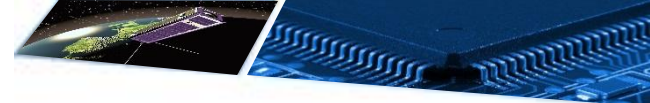


TC
TM



RISC-V +
Non-Intrusive Trace

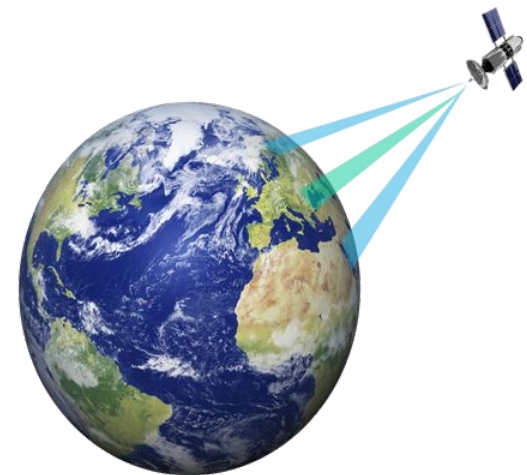
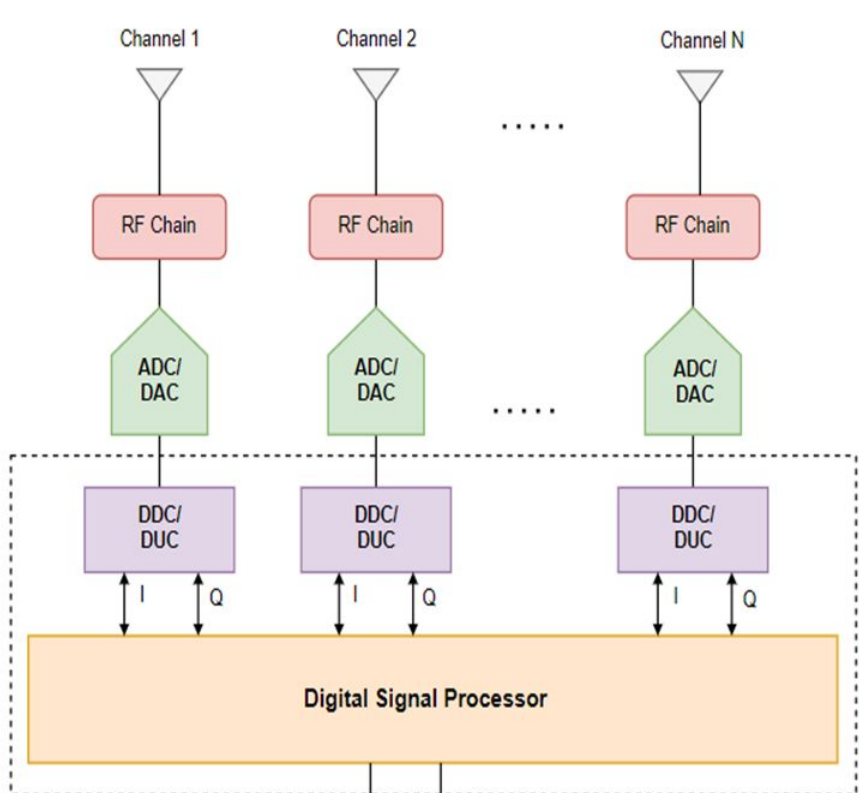




DIGITAL BEAM FORMING (Optimized with IA)



In progress



- VHDL (Kintex UltraScale FPGA)

