

Introducing the DPC G1



According to
ESCC 9000
in February 2017

Multipurpose RadHard Digital Programmable Controller
with embedded analog functions.

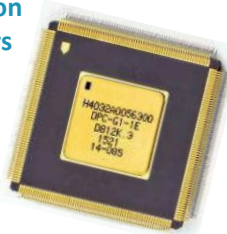
Main features

- Triple 16 bits μ C cores with embedded SRAM
- 6 independent PWM generators with complementary outputs
- 16 ADC inputs (13 bits, up to 1 MHz)
- 3 DAC outputs (12 bits, up to 1 MHz)
- 108 configurable general purpose IOs (LVCMOS & LVTTTL up to 8mA)
- Hardware support for MIL-1553, CAN, UART, universal parallel to serial, ML-16 & DL-16
- On chip band-gap & PLL & ref. oscillator
- Consumption: 120...550mA on 3.3V
- SEL free (to at least 78.2 MeV.cm²/mg)
- SEU: SRAM immune, registers immunity LET.40 MeV.cm²/mg
- Total dose > 60krad(Si)
- -55°C to 125°C operating t° range
- Support of common development tools (Eclipse, gcc, gdb)
- Support of Python direct command interface for HW application debugging

Cumulated hours in Orbit: 3,32 Million
Cumulated years in Orbit: 379,7 years
13 Missions in orbit
256 dcp in orbit

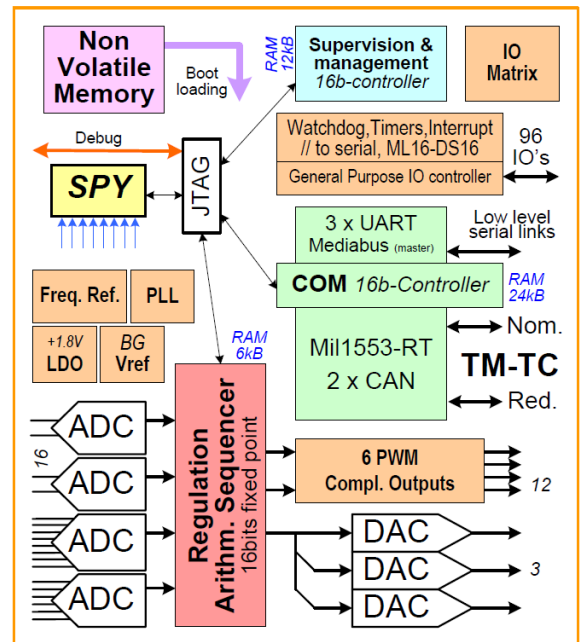
Eval Board and EM units available from Protec GmbH stock.

Heritage: RTU (Ceres), C-RTU (ExoMars), SDIU (satcom avionics), PCU (satcom)



Applications

- The DPC circuit targets several applications mostly related to sensing & power conditioning
- Power conversion: DC-DC, AC-DC, DC-AC and AC-AC converters
- Motor control: DC, stepper motors & AC up to 6 phase motors
- Intelligent remote sensor: one example of such function is decentralized control of sensors
- Distributed bus client in power conditioning
- Data bus protocol translation (gateway): aggregation & concentration of connections to several clients and interface through e.g. standard mil-1553B or CAN buses.



Performance:

μ C cores frequency

Total RAM

ADCs

ADCs modes

DACs

Clock system

Internal voltage reference accuracy

Power supply

Package

Export

15 to 40 MHz

Program: 28kBytes Data: 14kbytes

16 x (0 – 2.5V) inputs multiplexed into 4 ADCs

2 differential + 2 mixed diff. & single-ended

3 x 12 bits current outputs (0 – 4mA)

120 MHz PLL from internal or external reference

Maximum \square 0.25% t° drift

3.3V \pm 10% – 120...550mA

CQFP256 – 0.5mm pitch (organic packaging coming soon)

Not subject to US export regulations