
DC/DC Converter Technology Roundtable

ESA-ESTEC 13.04.2005



**OFF-THE-SHELF COMPONENTS AND/OR DESIGNS FOR
SPACE POWER SYSTEMS**

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Contents

- **Company Profile**
- **Current designs and products**
- **Possible designs and products**
- **Technology issues**
- **Cost and availability issues**

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Blu Electronic is an electronic systems design house which undertakes design, build, test and production for final customers and for third party companies. It operates within the aerospace, medical, military and industrial sectors, its principal activities being within the space & medical arena's.

The primary business sectors in which the company is currently active are:

- Aerospace
- Military
- Telecommunications (Tele-medicine&education)
- Oil & Gas

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The company was founded in 1998 and boasts several years experience of system design and realisation.

Typical of these achievements are:

- Design, development, test and production of satellite power systems
- Design, development, test and production of DC/DC converter boards
- Design, development, test and production of AC/DC converters for telecom applications
- Test Systems
- Motor control systems
- Project, design and test support for mini satellites

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BLU is currently involved in the following ESA programmes:

- **Experiment Container Control Unit (ECCU) for FSL**
- **Design, development, production, testing and qualification of the DC/DC converters boards for the Hershel – Planck DPU and payloads HI-FI, SPIRE, PACS**
- **Design, development, production, testing and support to qualification of a CAN-bus controller (with on-board dedicated DC/DC converter) for the AMS-PDS programme**

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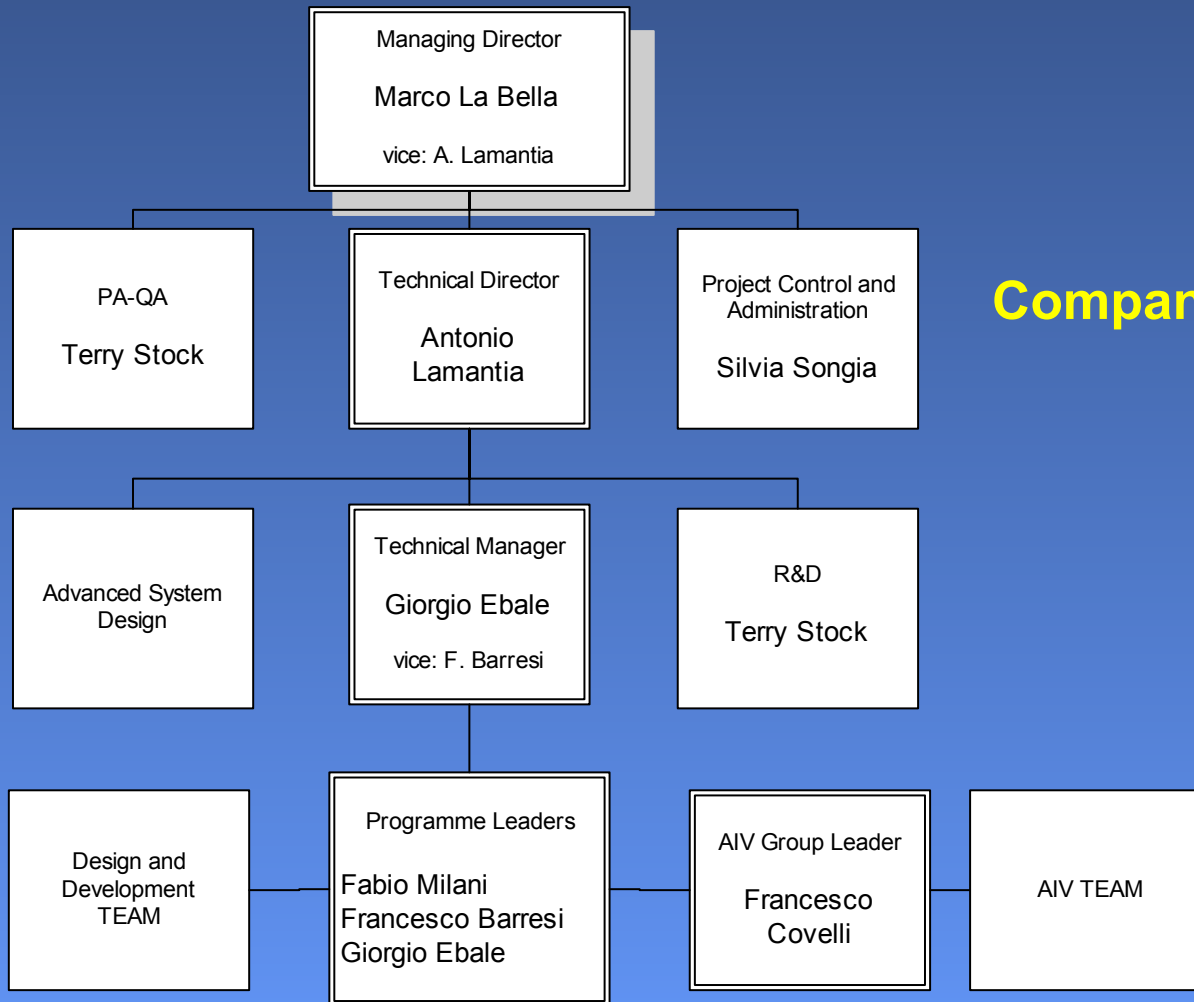
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BLU is currently involved in the following ASI programmes:

- Design, development, production, testing and qualification of the Power Electronic Box (PEB) for the Italian mission AGILE.
- Design, development, production, testing and qualification of the signal conditioning board for the AGILE Data Handling Box.
- Design and development of the AGILE Harness subsystem.
- Design, development, production and testing of the data acquisition and power supply system for an Infrared sensor (INCA: Italian iNfrared CAmera).
- Preliminary study for satellite applications in Telemedicine (team prime)
- Preliminary study for satellite applications in Teleeducation (sub-co)

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Company Organisation

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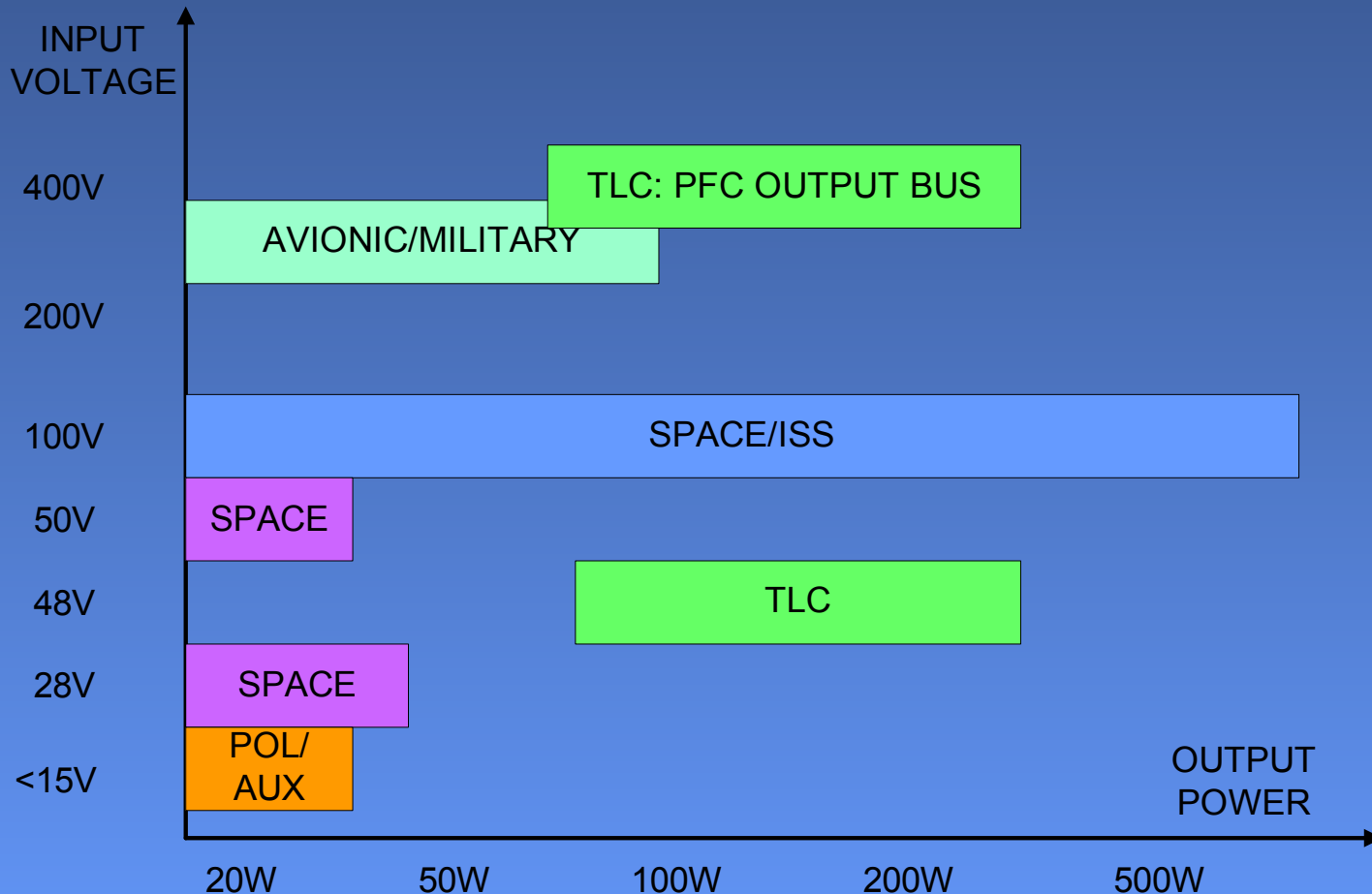
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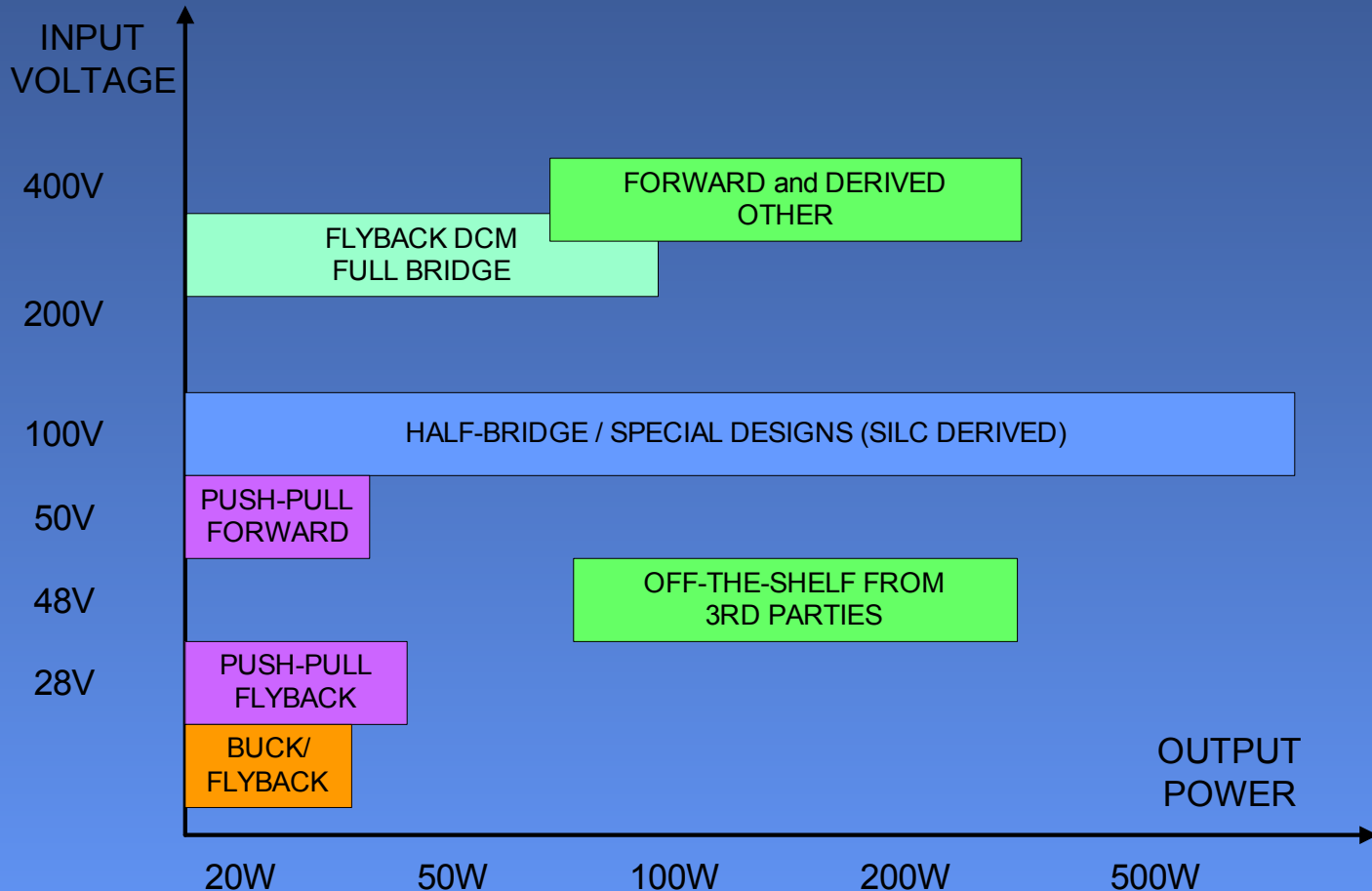
Designs-Products Portfolio by market areas (1)



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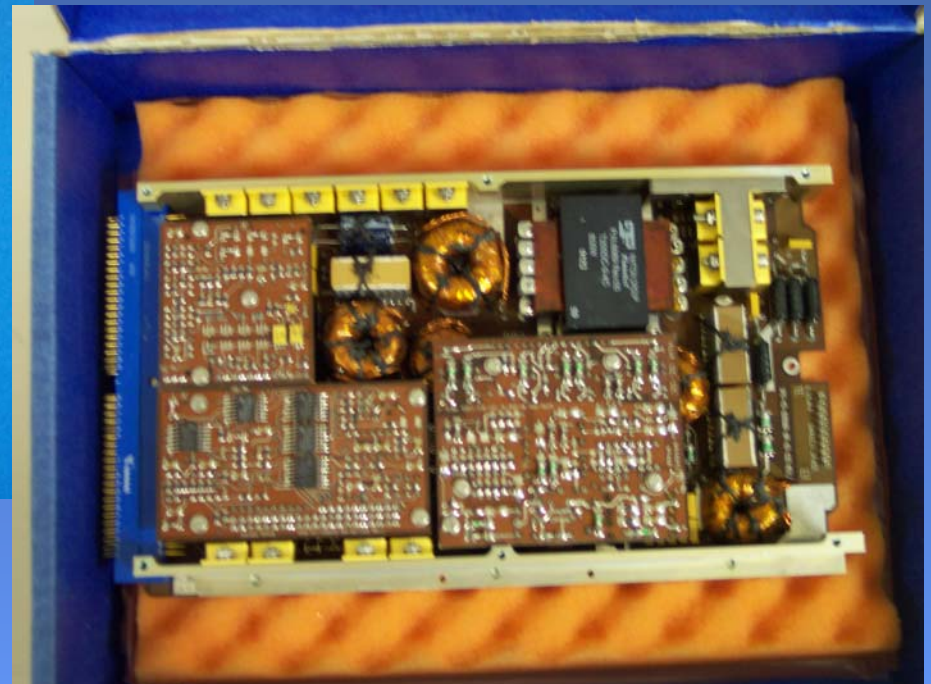
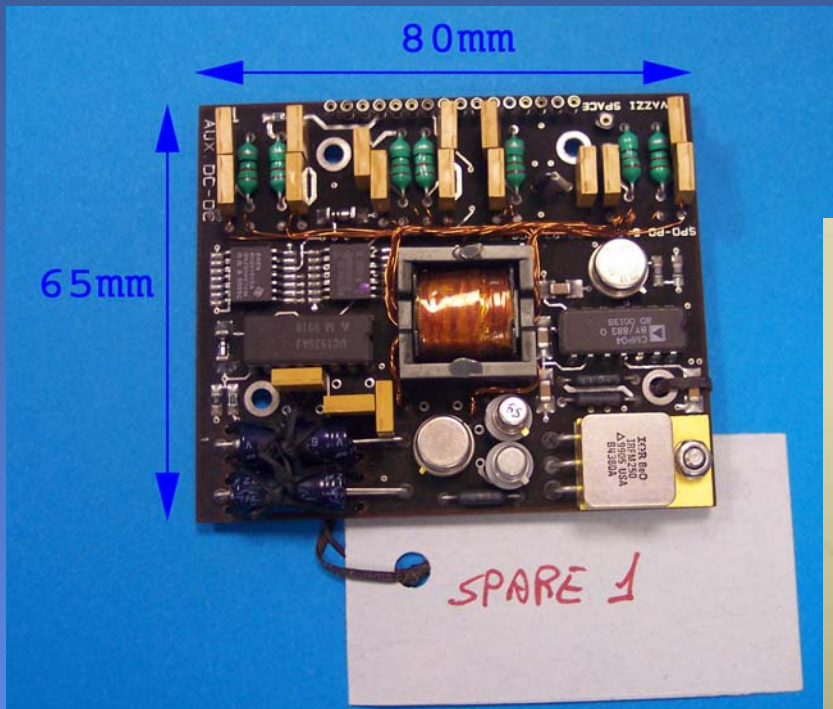
Designs-Products Portfolio by market areas (2)



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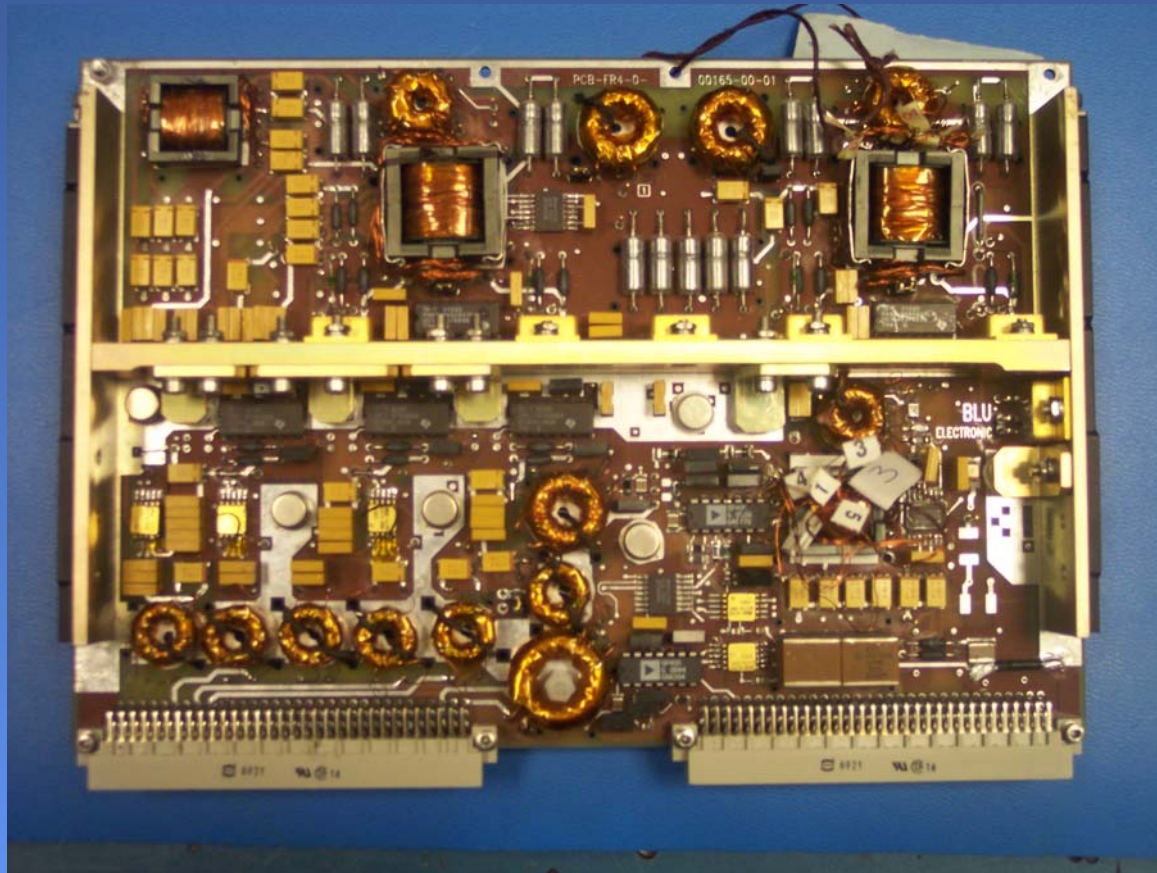
Designs-Products Portfolio by market areas (3)



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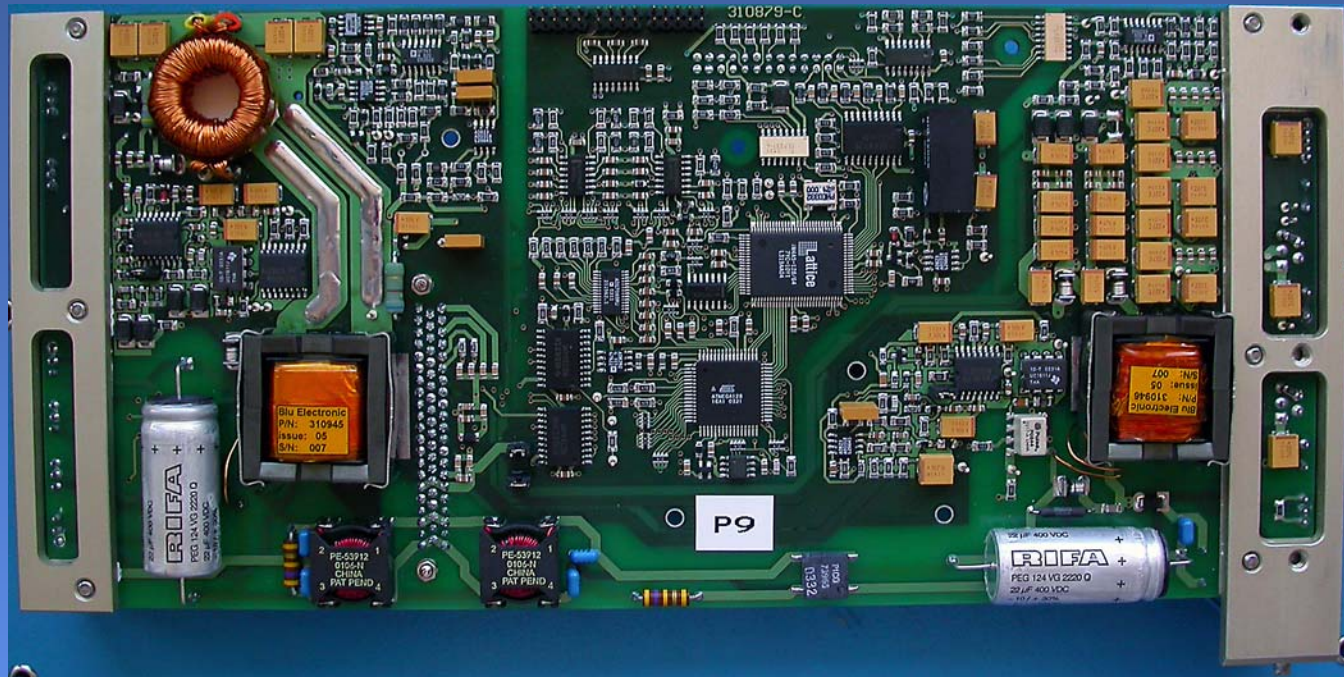
Designs-Products Portfolio by market areas (4)



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Designs-Products Portfolio by market areas (5)



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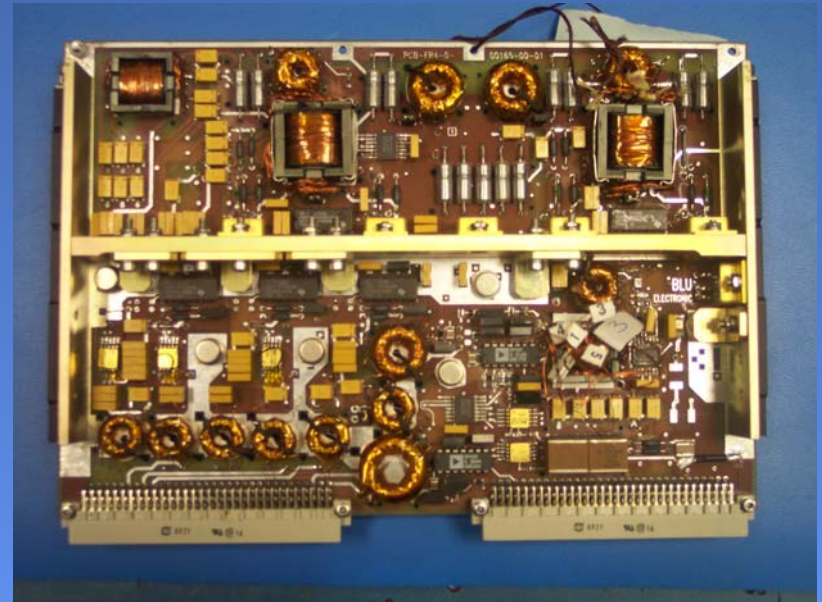
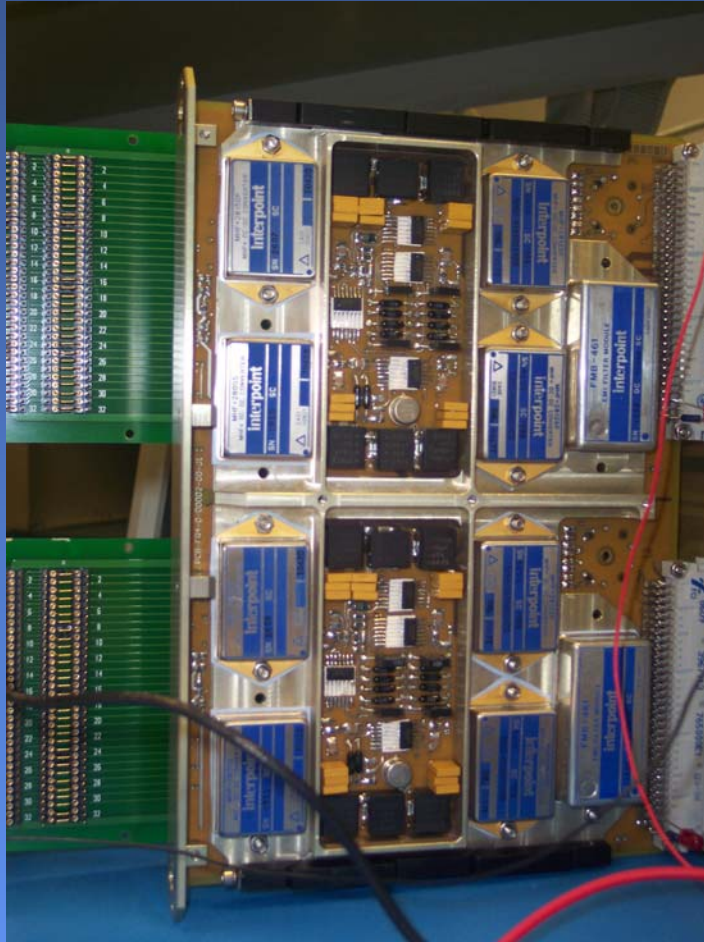
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Discussion hints:

- Off-the-shelf designs can be re-utilised very efficiently for non recurring or special applications.
- Components off-the-shelf are extensively utilised in TLC market. Second or third source required -> DC/DC converter suppliers today tend to share design and/or components with competitors (e.g.: POLA the Point of Load Alliance from TI)
- Standard designs and off-the-shelf components are the best solution for homogeneous applications but a standard solution for different applications could not exist
- Off-the-shelf solutions need to be carefully utilised

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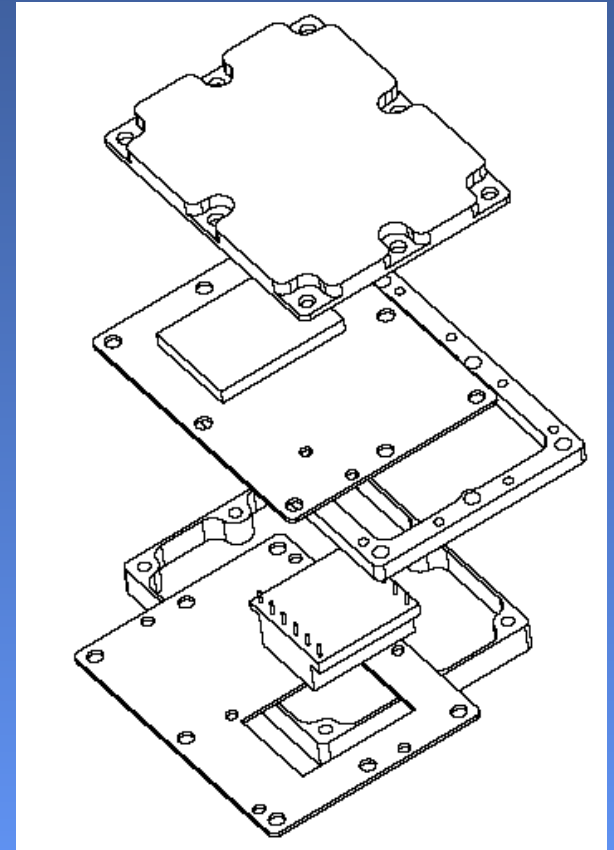
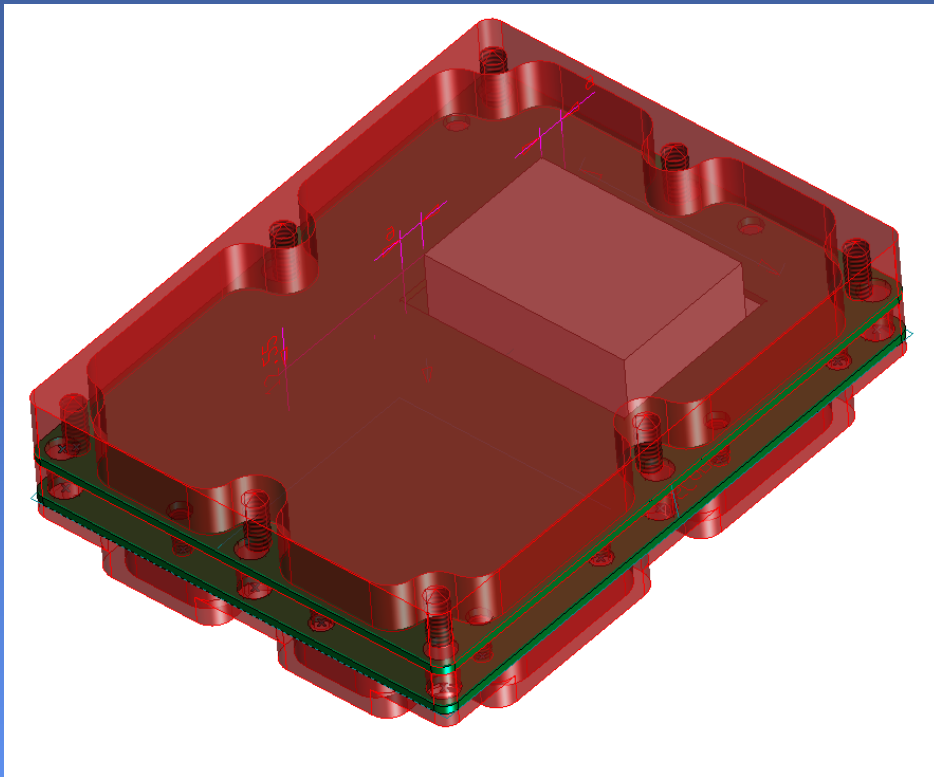
Based on current designs and products:

- **A flyback converter is a possible candidate for a compact multi-output DC/DC converter module for output power in the range of 20W.**
- **A forward converter is a possible candidate for a compact single or dual output DC/DC converter module in the same power range**

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Preliminary packaging option:



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Technology availability

- **Availability of state-of-the-art active and passive component technology is the key point for a successful European product**
- **Availability of active components suitable for space application is a strategic issue**
- **Design is not a major issue**

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- **Reliability requirements for space applications vs the need of low-cost and readily availability off-the-shelf components need to be assessed**
- **Make to order in addition to procure to order is the only possible solution today. Current programme volumes are limited.**