

DSPACE

DSP for Space Applications

DEALING BETTER WITH SPACE DATA

In the future, Europe will have to handle increasing data flows from space missions. The development of the next generation of Digital Signal Processors (DSP) is needed. DSPACE addresses this challenge.

New Earth observation missions, atmospheric sounding missions, planetary exploration missions and scientific missions require the capability to handle large amounts of data. Such handling includes the ability to process data on board missions, whilst applying both a first level trigger procedure and a compression algorithm. The ever increasing data flows demands a high on-board numerical calculation capability in order to elaborate the acquired information before sending it to Earth.

Available Digital Signal Processor (DSP) based modules offer a typical computing power of 20 MIPS and more noticeably 20 to 60 MFLOPS. Although it was considered sufficient a few years ago, future applications will require much higher computing power.

This requirement, together with the need to reduce the dependence on critical technologies from outside Europe, makes the development of next the generation of European general-purpose high performance DSPs with

a linked efficient and reliable SW application development environment mandatory.

The DSPACE project responds to this challenge, as it aims to develop a high performance DSP for space application up to 1 GFLOPs that - meeting the scalability, multi-purpose and usability features - is conceived to be used both as stand-alone signal processor into embedded systems and as a building component for increasing the computational capability.

A new DSP Core will be designed taking into account the requirements and limitations of today's European space technology. A complete front/back-end software environment, including a low level code optimiser layer, is expected to be developed together with benchmarks representative of common space scenarios.

The DSPACE core will be housed on a FPGA demonstrator board and made available with a complete SW Development Environment.



ANNAMARIA COLONNA
IS PROJECT COORDINATOR

QUESTIONS & ANSWERS

What do you want to achieve with this project?

The purpose of DSPACE is the development of a new Digital Signal Processor (DSP) component with capability near to 1 GFLOPS, meeting scalability, multi-purpose and usability features, to be used in space and commercial applications.

Why is this project important for Europe?

A condition-sine-qua-non for increasing European competitiveness is to make Europe independent in space technologies. Along this line, the DSPACE data signal processor for space applications will be an important milestone for guaranteeing free and unrestricted access to this technology.

How does your work benefit European citizens?

DSP are widely used within commercial (telephony, electronic music), medical (Diagnosis through images as CT, MRI, ultrasound,...) and scientific (heart observations) applications. All fields where high-capacity on-board calculations and more efficient devices are indispensable.



high technology background © Mike Kiev - Fotolia.com

DSPACE aims to develop a DSP for space applications to be used as a stand-alone signal processor into embedded systems or as building component.

DSPACE

DSP for Space Applications



LIST OF PARTNERS

- SITael AEROSPACE, Italy
- INTECS Informatica e Tecnologia del Software, Italy
- Consorzio Pisa Ricerche, Italy
- Space Applications Services, Belgium
- Rheinisch-Westfaelische Technische Hochschule Aachen, Germany

COORDINATOR

SITael AEROSPACE, Italy

CONTACT

Annamaria COLONNA

Tel: +39 050 9912116

E-mail: a.colonna@sitaelspace.com

PROJECT INFORMATION

DSP for Space Applications (DSPACE)

Duration: 24 months

EU Contribution: € 1.177.067,50

Estimated total cost: € 1.615.865

