

# PROJECT FACTSHEET AND LOGO

SEPHY  
Grant No. 640243

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## Abstract

This deliverable provides a brief description regarding the logo selection and the project factsheet elaboration process.

<sup>1</sup> Dissemination level: **PU** = Public; **PP** = Restricted to other programme participants (including the Commission Services); **RE** = Restricted to a group specified by the consortium (including the Commission Services); **CO** = Confidential, only for members of the consortium (including the Commission Services).

<sup>2</sup> Nature of deliverable: **R** = Report; **P** = Prototype; **D** = Demonstrator; **O** = Other

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## List of Acronyms

ACRONYM	MEANING
SEPHY	Space Ethernet PHYsical layer
TTT	TTTech Computertechnik AG

**Table 1. List of acronyms**

## Executive Summary

This document shall give testimony of the efforts done for defining the SEPHY identity within the consortium. To this aim, a logo has been produced in agreement with all partners as well as a factsheet providing concise information related to SEPHY.

# 1 Introduction

The creation of a corporate visual identity plays a major role in the way that SEPHY is projected within the consortium and the external world. A corporate visual is a graphic symbol that represents the organisation, its values, ambitions and characteristics. Our corporate visual identity provides the project with visibility and recognisability, which is often the primary mean by which customers and other people form an image of SEPHY.

It is of high importance that people know about the existence of this organization, and that they are able to remember its name and core business at the right time. In the following, subsections including the actions taken to create SEPHY's visual identity are presented.

# 2 Logo

For the improvement of its visibility, the SEPHY project has adopted a project logo. The logo is a vital marketing tool, since it is used in all internal templates as well as on external dissemination material such as deliverables, presentations, newspaper publications, and all possible promotional material.

During the project kick-off meeting, seven different logos were presented and were put to the vote, see Figure 1. The proposed logos were based on the project name and some of them also contained an icon representing an integrated circuit. This integrated circuit represents the actual core of the project: the Space Ethernet PHY transceiver.

The first voting round took place and the winner was logo 2. Nevertheless, the partners expressed their wish to apply minor modifications to this logo.



Figure 1. Logos provided at the kick-off meeting.

In the second round, two more logos were provided based on logo 2 (see Figure 2) and the partners casted their vote once more.

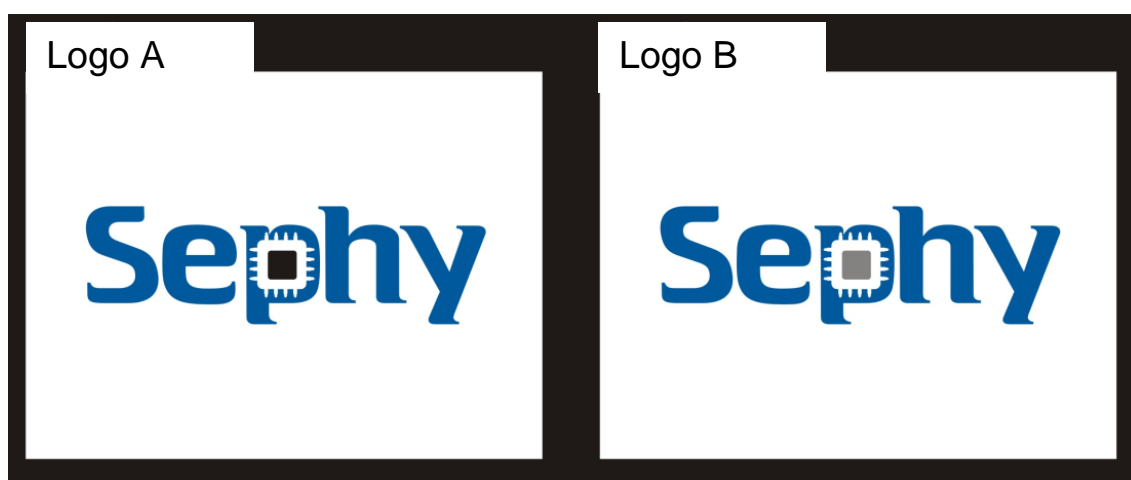


Figure 2. Logos provided at the final voting.

The results were the following:

Institution	Logo A	Logo B
Arquimea	X	
IHP		X
UAN	X	
TASE	X	
ATMEL		X
TTT	X	

Table 2. Voting results for SEPHY logo.

The logo selected by the majority of the partners was Logo A (see Figure 2). It is displayed in blue letters (RGB: 6, 115, 185) and contains an icon right in the middle of the letter “P” that represents the Space Ethernet physical layer transceiver. The core of the chip is depicted in a black (RGB: 55, 52, 53) color. Logo A is the official logo for the SEPHY project.

### 3 Factsheet

The official SEPHY leaflet is a tri-fold A4 flyer. The blue color used in the flyer is the same from the logo, namely; RGB: 6, 115, 185. The blue/gray areas were set to an RGB: 207, 229, 239. The text was written in standard white and black colors, being the selected fonts raleway, roboto and gaspar.

In the inside part of the flyer, the reader is informed in a graphically appealing way the mission, motivation and objectives of the project. Moreover, the technical approach is introduced and summarized in a fivefold scheme:

1. ITAR-Free Ethernet PHY transceiver
2. Two-fold radiation hardening approach
3. Functional and environmental (radiation) testing
4. Space-qualified manufacturing and packaging
5. Support European packaging of naked complex multipad dies and mixed ASIC testing capabilities.

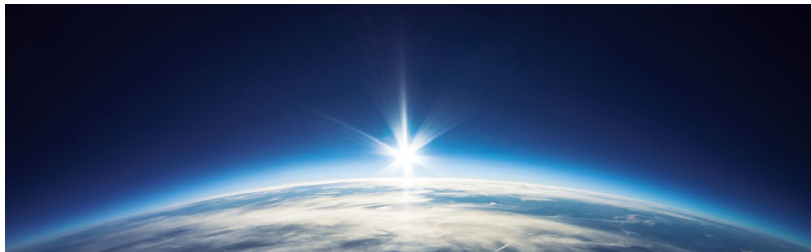
In the inner side of the flyer, a figure displaying an Ethernet network setup for space, which uses the SEPHY transceiver, should provide a clear idea of the device's application.

In the outer side of the flyer, a few project facts such as the project's website, number, duration, logo, total cost and the financial contribution provided by the European Commission are communicated in a concise fashion. Besides this, the project partners are announced through their company logos, and the contact information of the project coordinator is provided.

At last, the European Union flag is exhibited together with an acknowledgement and disclaimer.

This document is planned to be distributed at conferences or other events in order to bring further visibility of the SEPHY project. TTT was mainly responsible for the content and design of the leaflet. This was distributed to all partners after the first draft was finalized. The last version was delivered considering the partner's inputs.

An electronic version of the leaflet is available on the SEPHY website, following the link: [www.sephy.eu](http://www.sephy.eu).



#### MISSION:

- \* SEPHY aims to increase the European competitiveness by developing an ITAR-free and radiation hardened 10/100-Base-T Ethernet transceiver (PHY), which can be used worldwide.
- \* This project will foster innovation by developing a new space market device, which will grant non-dependence as it is designed and manufactured with European flows and processes.

#### MOTIVATION:

- \* The growing complexity of space systems is creating the need for high-speed networking technologies to interconnect the different elements of a spacecraft.
- \* SEPHY targets the development of a space-graded Ethernet transceiver device to allow the protocol's full adoption in space applications while maintaining interoperability with the existing technical standards.
- \* Further contributions and new developments based on both Time-Triggered Ethernet and AFDX protocols are expected.
- \* This should reduce even more the dependence on export-controlled technologies from outside Europe.
- \* The development of SEPHY will make Europe a pioneer on a critical space component, since currently there are no such space-graded Ethernet transceivers available on the global market.

#### OBJECTIVES:

- \* Development of a radiation hardened 10/100-Base-T Ethernet physical layer transceiver for the space market in line with the trend towards Ethernet based communications.
- \* SEPHY will become a standard solution in future international space applications for launchers, satellites and spacecraft.
- \* The project results are fully in line with Ethernet and space-validated Time-Triggered Ethernet for deterministic real-time communication and enhanced Quality of Service based on the Ethernet standard.
- \* Study the feasibility of a 1000Base-T Ethernet physical layer transceiver for space as the natural evolution of the 10/100-Base-T.



#### TECHNICAL APPROACH

SEPHY focuses on the development of a mixed-signal Processing ASIC, as one of the technologies identified as a priority on the list of Urgent Actions on Critical Space Technologies. The detailed actions to be considered and how they are addressed in SEPHY can be summarized are fivefold:

#### I

#### ITAR-FREE ETHERNET PHY TRANSCEIVER:

- \* The SEPHY Ethernet transceiver is a mixed-signal device developed in Europe and free from restrictions imposed by the International Traffic in Arms Regulations (ITAR).
- \* The physical layer transceiver deals with the transmission and reception of data over the physical medium ensuring reliable communication (see Figure).
- \* Since the PHY interacts directly with the physical signals on the cable it has to contain an analogue front end capable of transmitting and receiving analogue signals.
- \* As the PHY connects to the digital MAC layer, it needs to perform complex digital signal processing and data controlling.
- \* The physical implementation occurs by means of a mixed-signal ASIC. This is a complex semiconductor device that embeds in the same substrate analogue and digital functions.
- \* The device will be 100% compatible with 10/100Base-T Ethernet standard.

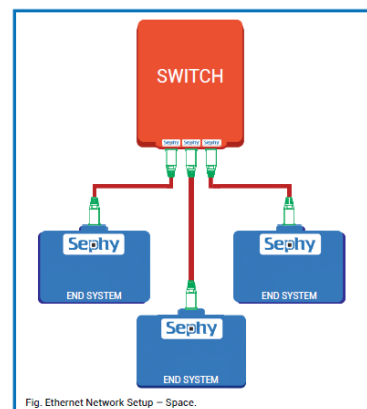


Figure 3. SEPHY flyer (inner side)



2

TWO-FOLD RADIATION HARDENING APPROACH

The SEPHY transceiver will undergo:

- Radiation hardening by design: special circuit design techniques that can be applied at the system, architectural or layout level, e.g.: EDAC, TMR.
- Process hardening: modifications during fabrication processes to reduce the impact of radiation on integrated circuits, e.g.: use of specific insulator materials or the modification of doping profiles.

3

FUNCTIONAL AND ENVIRONMENTAL (RADIATION) TESTING

- The SEPHY results will be tested in a radiation environment measuring all the electrical parameters. In particular, Total Ionizing Dose (TID), Single Event Upset (SEU) and Single Event Latch-up (SEL) tests will be performed.
- Estimate the overall performance of the space qualified communication system built around the SEPHY device.
- Determine the amount of communication errors induced in the system by the radiation effects.
- The PHY behavior will be tested with regards to standard Ethernet and Time-Triggered Ethernet functionality.
- All tests guarantee that the SEPHY device achieves a high maturity level such that it can be included without risk in a space communication subsystem.

4

SPACE-QUALIFIED MANUFACTURING AND PACKAGING

- The chip will achieve manufacturing which is fully compliant with already existing quality standards and reliability requirements.
- The chip will be available in space-grade ceramic and plastic packaging to support different customer requests. The package will be Quad Flat type (QFP), with a maximum of 64 pins.

5

SUPPORT EUROPEAN PACKAGING OF NAKED COMPLEX MULTIPAD DIES AND MIXED ASIC TESTING CAPABILITIES

- The Ethernet PHY will be a mixed-signal device packaged and tested within Europe.

## SEPHY SPACE ETHERNET PHYSICAL LAYER TRANSCEIVER

### Project partners:

ARQUIMEA  
PASSION FOR TECHNOLOGY

ThalesAlenia  
space

hip  
Innovations  
for high  
performance  
microelectronics

Atmel

UNIVERSIDAD  
NEBRIJA

TTTech  
Ensuring Reliable Networks



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Project duration: 39 months

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EC contribution: EUR 3.115.222,50

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Disclaimer: The opinions expressed and arguments employed herein do not necessarily reflect the official views of the REA.

The SEPHY consortium brings together a team of recognized partners to achieve the objectives planned within the project. It is composed of 4 industrial companies, 1 research center and 1 leading university, with roots in four European countries.

These partners combine their experience in the areas of analogue and digital design, manufacturing, mixed-signal methodology, fault-tolerant techniques for space electronics and Time-Triggered Ethernet to deliver a first-class device for space applications.

Figure 4. SEPHY flyer (outer side)