



Expand: High Performance Storage System for HPC and Big Data Environments” (TED2021-131798B-I00)

# High Performance Storage Systems for HPC and Big Data (Expand)



## D 4.1 Intermediate Project Report

Universidad Carlos III de Madrid

Junio, 2025

CONTENTS

BIBLIOGRAPHY . . . . . 1

1. MAIN RESULTS OBTAINED IN 2023. . . . . 1

1.1. Publications . . . . . 1

1.1.1. International conferences . . . . . 1

1.1.2. National conferences . . . . . 1

1.2. Theses under development. . . . . 1

1.3. Results obtained in the IO500 benchmark . . . . . 1

## 1. MAIN RESULTS OBTAINED IN 2023

This report presents the main results obtained with the development of the project:

- Publications.
- Results obtained in the IO500 benchmark.

### 1.1. Publications

#### 1.1.1. International conferences

- Felix Garcia-Carballeira, Diego Camarmas-Alonso, Alejandro Calderon-Mateos, Jesus Carretero, “A new Ad-Hoc parallel file system for HPC environments based on the Expand parallel file system”, *22nd International Symposium on Parallel and Distributed Computing (ISPD)* [CORE C], pp. 69-76, July 10-12 2023, Bucharest, Romania  
doi: 10.1109/ISPD59212.2023.00015.

#### 1.1.2. National conferences

- Diego Camarmas-Alonso, Felix Garcia-Carballeira, Alejandro Calderon-Mateos, Jesus Carretero, “Evaluación de rendimiento del sistema de ficheros paralelo Expand Ad-Hoc en MareNostrum 4”, *XXXIII Jornadas de Paralelismo (JP23)*, pp. 397-404, September 20-22 2023, Ciudad Real  
doi: 10.5281/zenodo.8378956.
- Elias Del-Pozo-Puñal, Felix Garcia-Carballeira, Diego Camarmas-Alonso, Alejandro Calderon-Mateos, “Sistema de Ficheros Distribuido para IoT basado en Expand”, *XXXIII Jornadas de Paralelismo (JP23)*, pp. 559-567, September 20-22 2023, Ciudad Real  
doi: 10.5281/zenodo.10706248.

### 1.2. Theses under development

The results obtained in the project have given rise to the following doctoral theses:

### 1.3. Results obtained in the IO500 benchmark

Expand has been included in the IO500 list (<https://io500.org>), where positions are as follows:

- MareNostrum 4 supercomputer evaluation (SC23):
  - \* 69th position out of 101 in the 10 Node Research list.
  - \* 184th position out of 236 in the Full list.