Call for Collaboration

OSSAT Platform Computer Memory Evaluation

CFC-0020
February 2021

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1. Document History

Please see the following record of revisions:

Document Revision	Document Status	Change Description	SharePoint Version
01	RELEASED	-	-

2. References

The following references are applicable to this document.

Document Reference	Document Title	Reference in this Document
KS-DOC-01076-01	Open Source Satellite Programme Manifesto	-

3. Work Package Description

WORK PACKAGE DESCRIPTION			
Project	OSSAT (Open Source Satellite)		
WP Title	OSSAT Platform Computer Memory Evaluation		
Supplier:	OSSAT Collaborator	**Country:**	Any
WP Manager:	Paul Madle		
Start Event:	Project Kick Off	**and/or Planned Start Date:**	TBD
End Event:	Presentation of findings	**and/or Planned End Date:**	TBD
Objectives: To identify memory technologies suitable for the memory needs of the OSSAT Platform computer.			
Task Description: The OSSAT team need to identify memory technologies that could accompany the OSSAT platform computer processor core. So far, OSSAT have identified processors that could be good to use as processor cores. These processors are 1 of either: • Microchip (aka Atmel) SAMV71 • Microchip (aka Atmel) SAMA5D36 • ST Microelectronics STM32H753ZI All 3 of the above processors are being tested for tolerance against the radiation environment of space in a project between the University of Surrey and KISPE Space Systems Ltd (the project named SPRINT 1040). All 3 of these processors require off chip memory to fulfil the OSSAT platform computer requirements. The purpose of this project is to analyse the currently-available memory devices within the market and analyses them from a number of different perspectives: • Radiation Tolerance (SEU/MBU and TID) • Read times • Write times • Volatility • Capacity			

- Thermal resilience
- Power consumption
- Any special operating conditions
- Physical Size
- Ease of manufacture

In particular, radiation tolerance is critical. Many memories now include ECC (Error Correction Code) that makes the code resilient to Single Event Upsets... Features like these are particularly attractive.

Inputs: A weighted evaluation criteria to be provided by KISPE Space Systems Ltd.

Interfaces/links with other tasks or WPs: SPRINT 1040 & SPRINT 1164	Applicable requirements, standards, regulations, constraints: None

Outputs:

OP1:A spreadsheet that documents the analysis of the memories and scores them based on criteria weightings.

OP2: A presentation to the OSSAT programme of the findings of this analysis.

OP3: Suggested follow up works

Indicative Effort: 3 weeks.

4. Interested? Want to find out more?

Register your interest at www.opensourcesatellite.org/register/, putting "**CFC-0020**" in the "Other" free text box in the registration form.

Thank you!

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@SatelliteOpen

info@opensourcesatellite.org