

# OPEN POSSIBILITIES.

## Intel® Cyclone® V-Based RunBMC Solution Update



**OCP**  
GLOBAL  
SUMMIT

NOVEMBER 9-10, 2021

# Intel® Cyclone® V-Based RunBMC Solution Update

Jan Sowinski, Software Engineer, Intel  
Lumin Zhang, Hardware Engineer, Intel  
Kasper Wszolek, Principal Engineer, Intel

OPEN POSSIBILITIES.



**OPEN**  
PLATINUM™



# Agenda

- Background
- Module v2 Updates
- Live Demo
- Design Contribution
- Call to Action



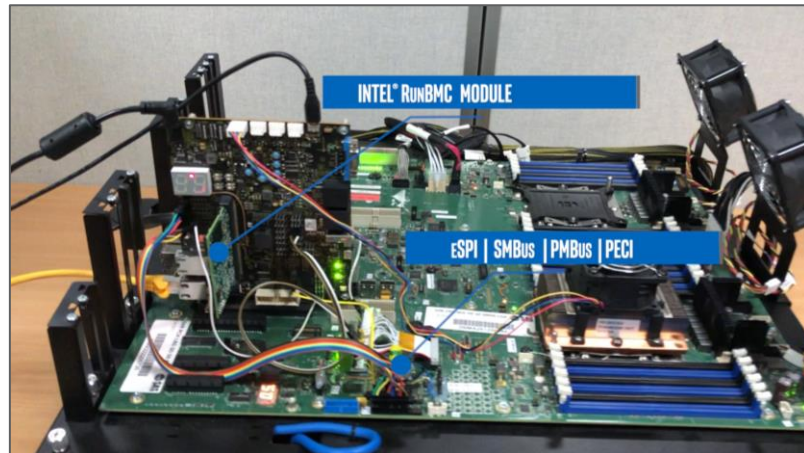
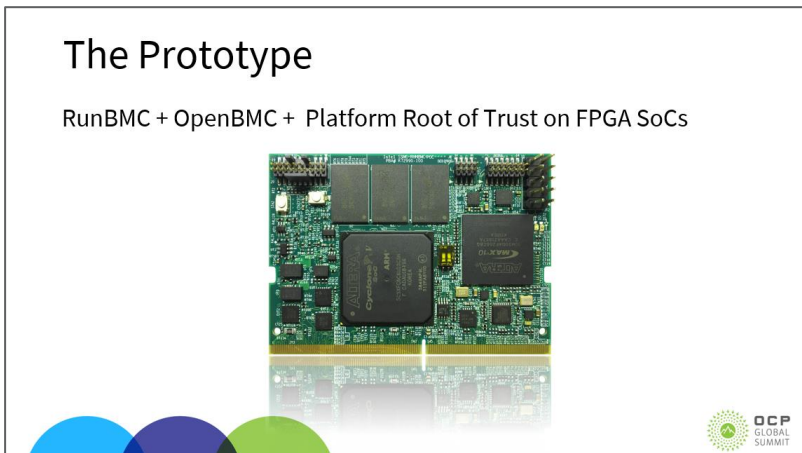
HW MANAGEMENT

OPEN POSSIBILITIES.



# Background

- First prototype and demo presented at OCP Global Summit 2020



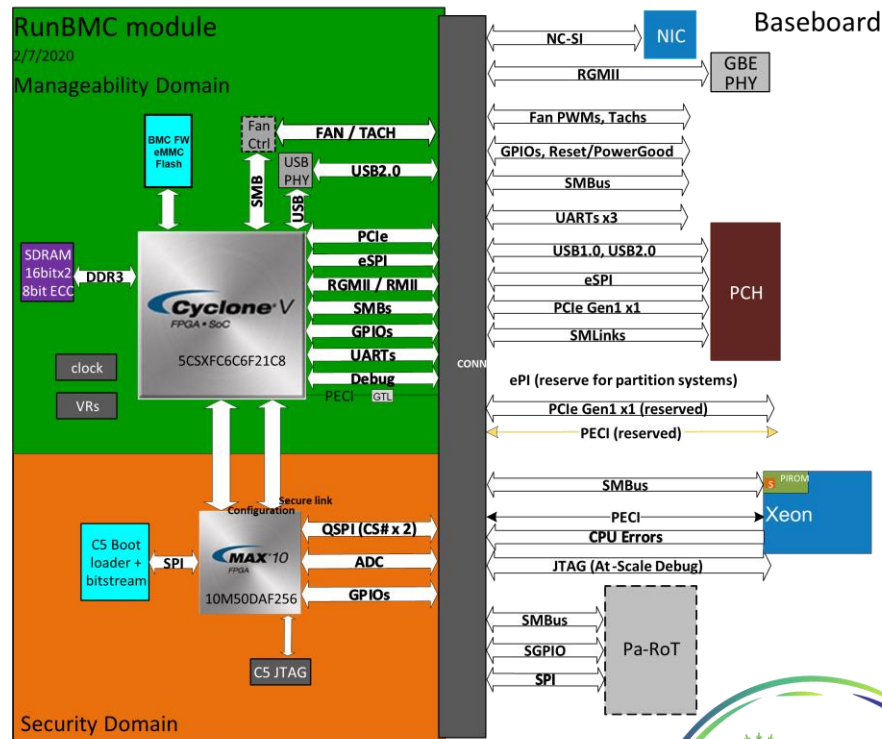
- Developed Intel® Cyclone® V RunBMC Module v2 with RunBMC 1.4.1 Specification compatibility

OPEN POSSIBILITIES.



# Re-cap: Cyclone<sup>®</sup> V Based RunBMC

- Form factor Large (50 x 70mm)
- 12 Layer PCB
- Manageability domain on Cyclone<sup>®</sup> V
- Security domain on Max<sup>®</sup> 10



OPEN POSSIBILITIES.

# Module v2 Updates

## Updated Module v2 Design (Fab2):

- VGA support added
- 2nd USB support added
- Design fixes
  - PCB thickness fix
  - Spec compatibility improved



Fab1



Fab2

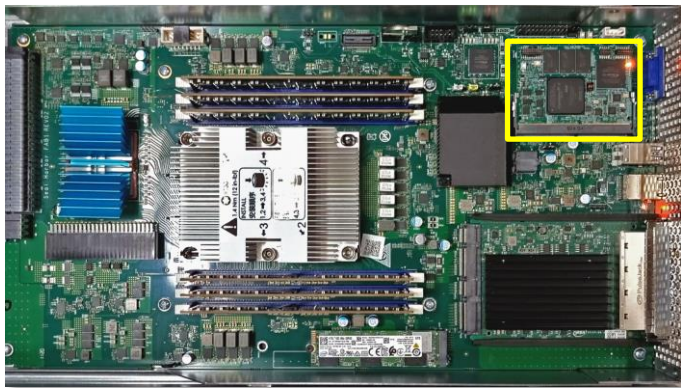
OPEN POSSIBILITIES.



# Live Demo in Experience Center

Cyclone® V Module v2 (Fab2) Demo:

- Intel CascadeLake RunBMC compatible prototype platform
- OpenBMC FW support on Cyclone® V RunBMC Module
- Platform Boot, KVM, SOL, Redfish, Telemetry



OPEN POSSIBILITIES.



# Design Contribution

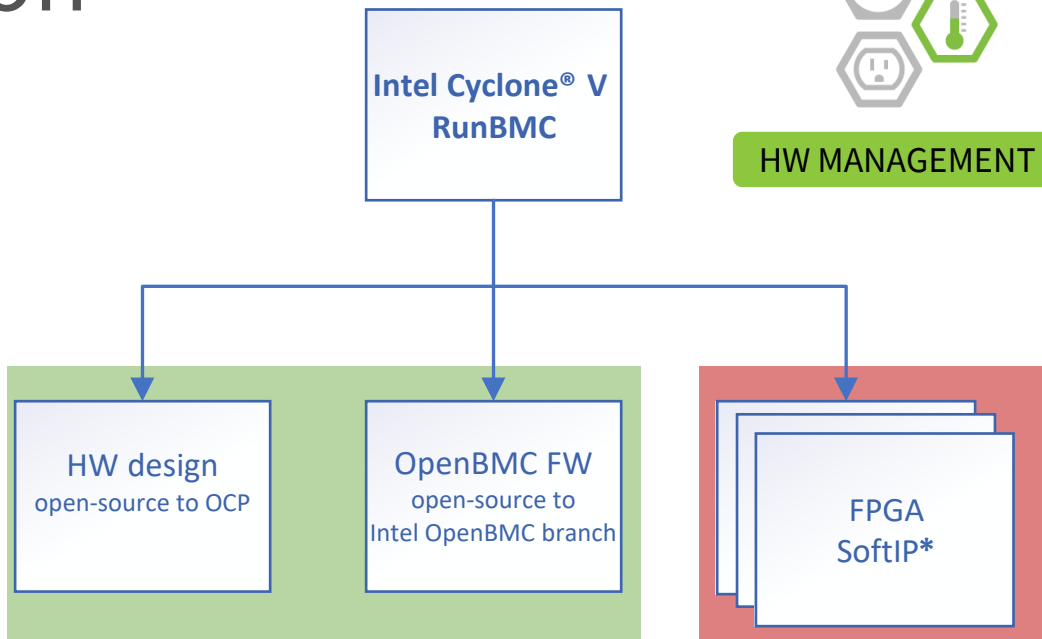
Intel RunBMC Design Contribution:

## HW Module Design

- Module schematics
- Module PCB Design

## OpenBMC Enabling for Cyclone® V:

- Kernel and uBoot support
- Sensors, FRU, Fan support
- FPGA enabling and project setup guideline



\*Not part of the contribution

OPEN POSSIBILITIES.





# Call to Action

- Join us in Experience Area to see the Live Demo
- Expect Intel RunBMC Design Contribution available shortly.

Project Wiki with latest specification :

[https://www.opencompute.org/wiki/Hardware\\_Management/Hardware\\_Management\\_Module](https://www.opencompute.org/wiki/Hardware_Management/Hardware_Management_Module)

Mailing list: [OCP-HWMgt-Module@OCP-All.groups.io](mailto:OCP-HWMgt-Module@OCP-All.groups.io)

OPEN POSSIBILITIES.



# Open Discussion



**OCP**  
GLOBAL  
SUMMIT

NOVEMBER 9-10, 2021