

The proposal for standardization of FO-PLP wide panel FOUP

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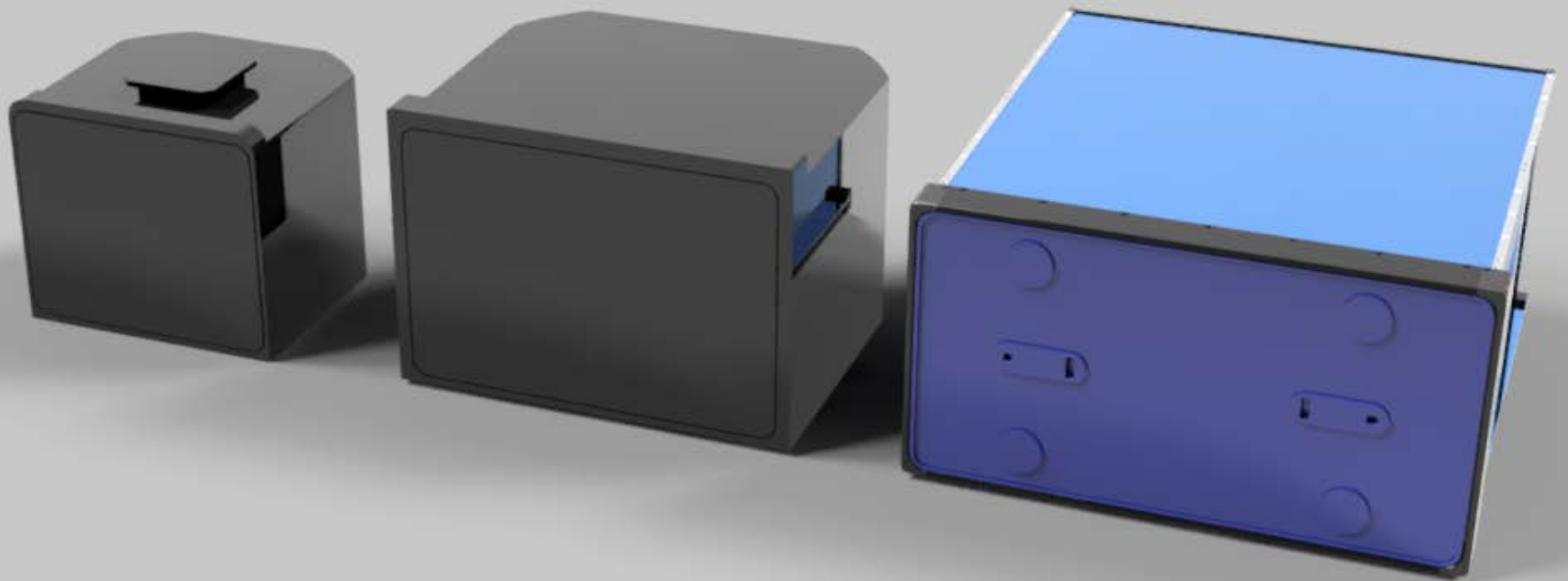
1. Rational background of wide panel FOUP Standardization

- ❑ The standardization for Panel FOUP is increasingly demanded by some OSAT and equipment suppliers.
- ❑ It is concerned to increase costs for developments in automatized PLP manufacturing, due to OSATs demanding individual specifications for mechanical interfaces of Panel FOUP.
- ❑ Synchronizing with the standardization of Panel sizes makes the development of standards effective.
 - ⇒ SEMI The Fan-Out Panel Level Packaging (FO-PLP) Panel Task Force
- ❑ The standardizing for mechanical interface specifications to transport Panel FOUP, will be also needed due to over 50kg mass of Panel FOUP with panels.

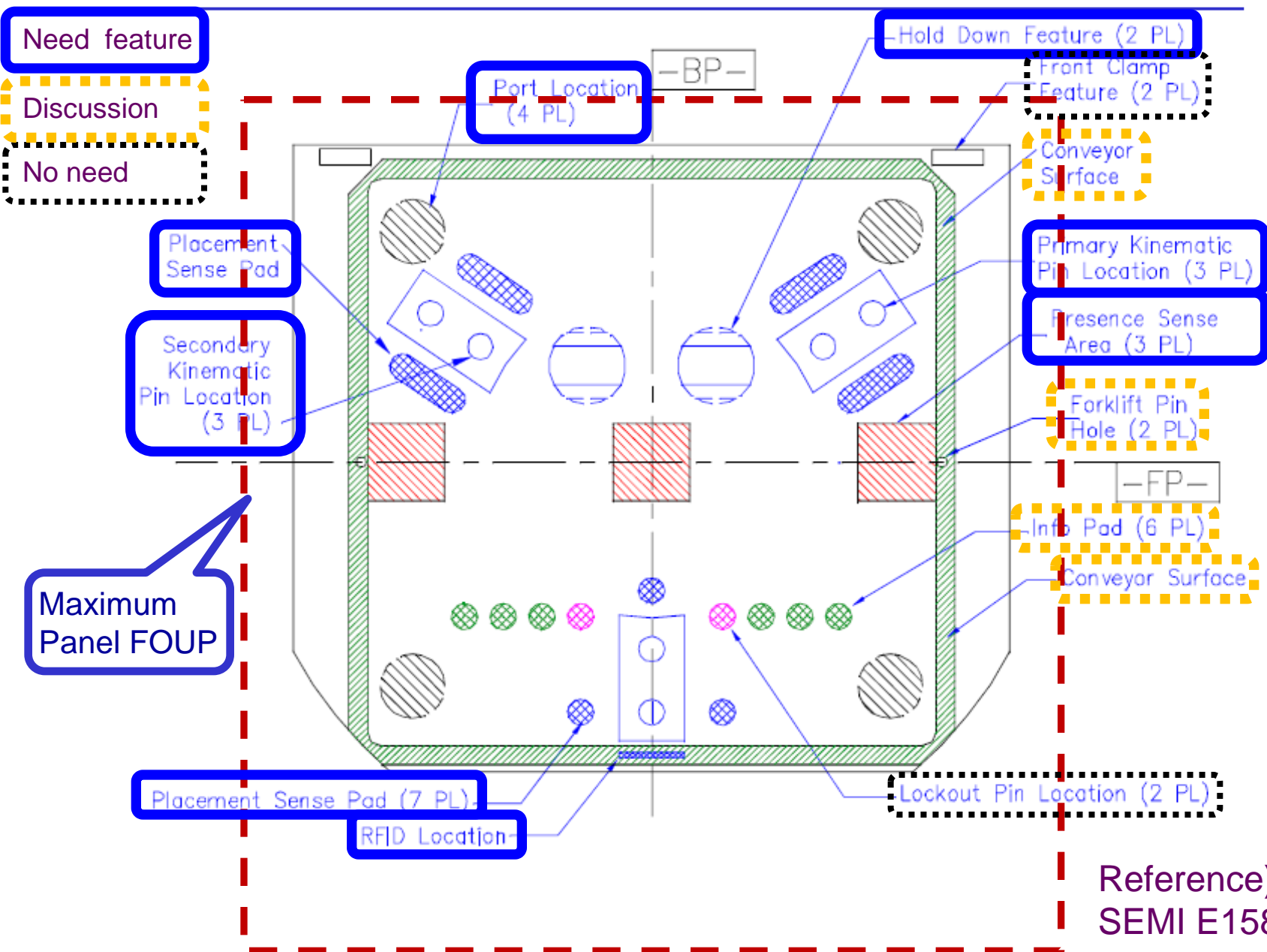
2. The concept of wide panel FOUP Standardization

- ❑ Resources to development the standard will be minimized with appropriating 450mm SEMI standards legacy.**
- ❑ Assuming panel sizes w500~600 x d500~650**
- ❑ 1st Step: Standardizing specifications of interfaces related without panel sizes before the sizes concreted**
- ❑ 2nd Step: Standardizing specifications of interfaces related with panel sizes after the sizes concreted**

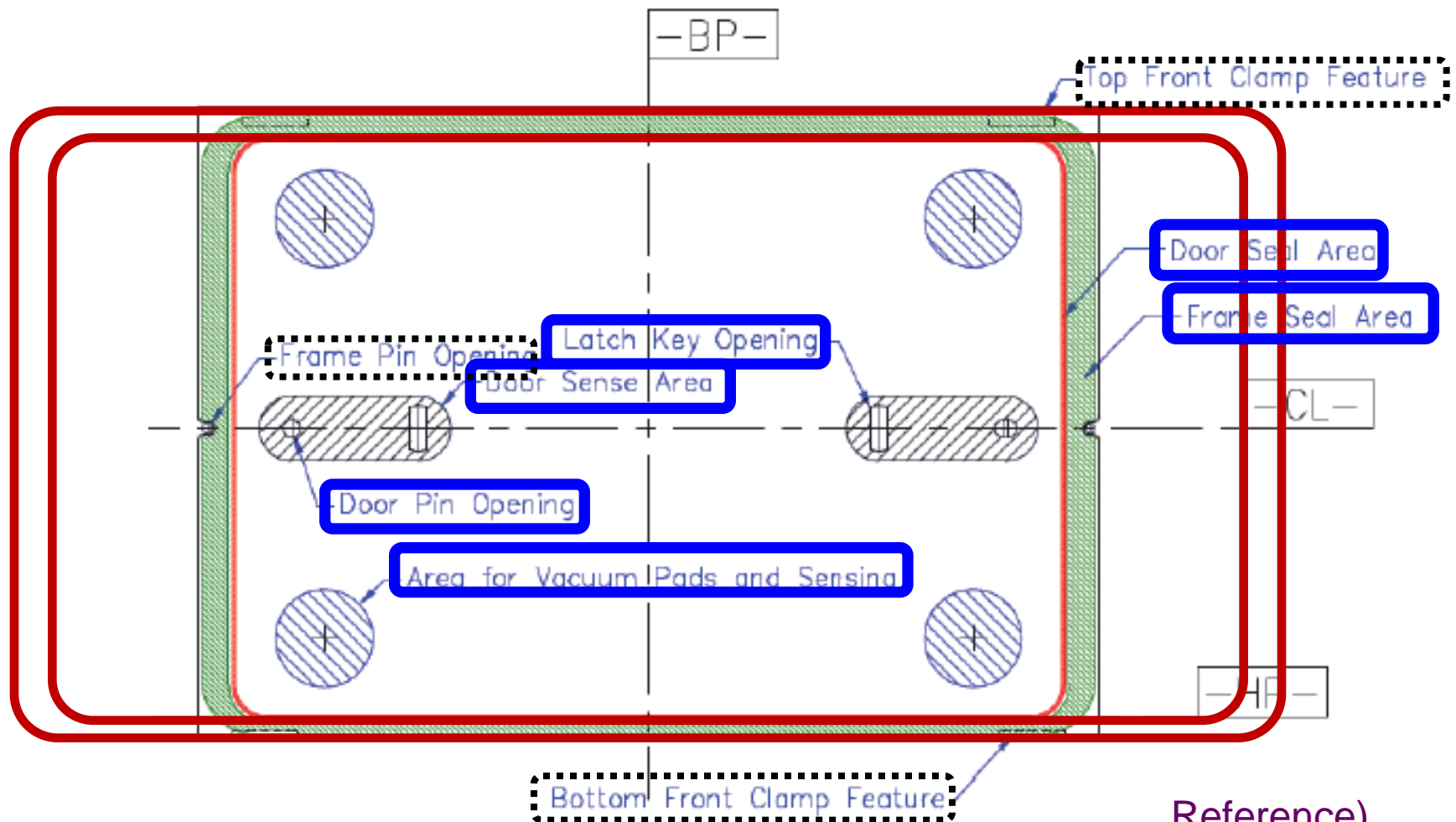
Images 300mm FOUP / 450mm FOUP / Wide panel FOUP



3-1. Features of the bottom face



3-2. Features of the front face



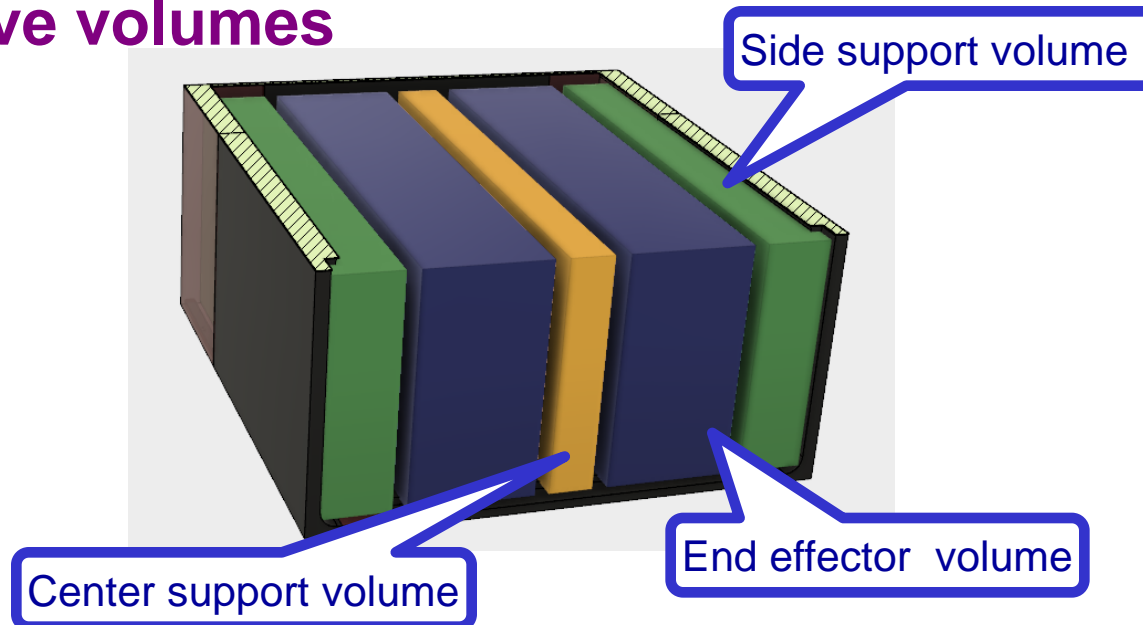
Reference)
SEMI E158 Fig.19

3-3. Storage pitches and Exclusive volumes

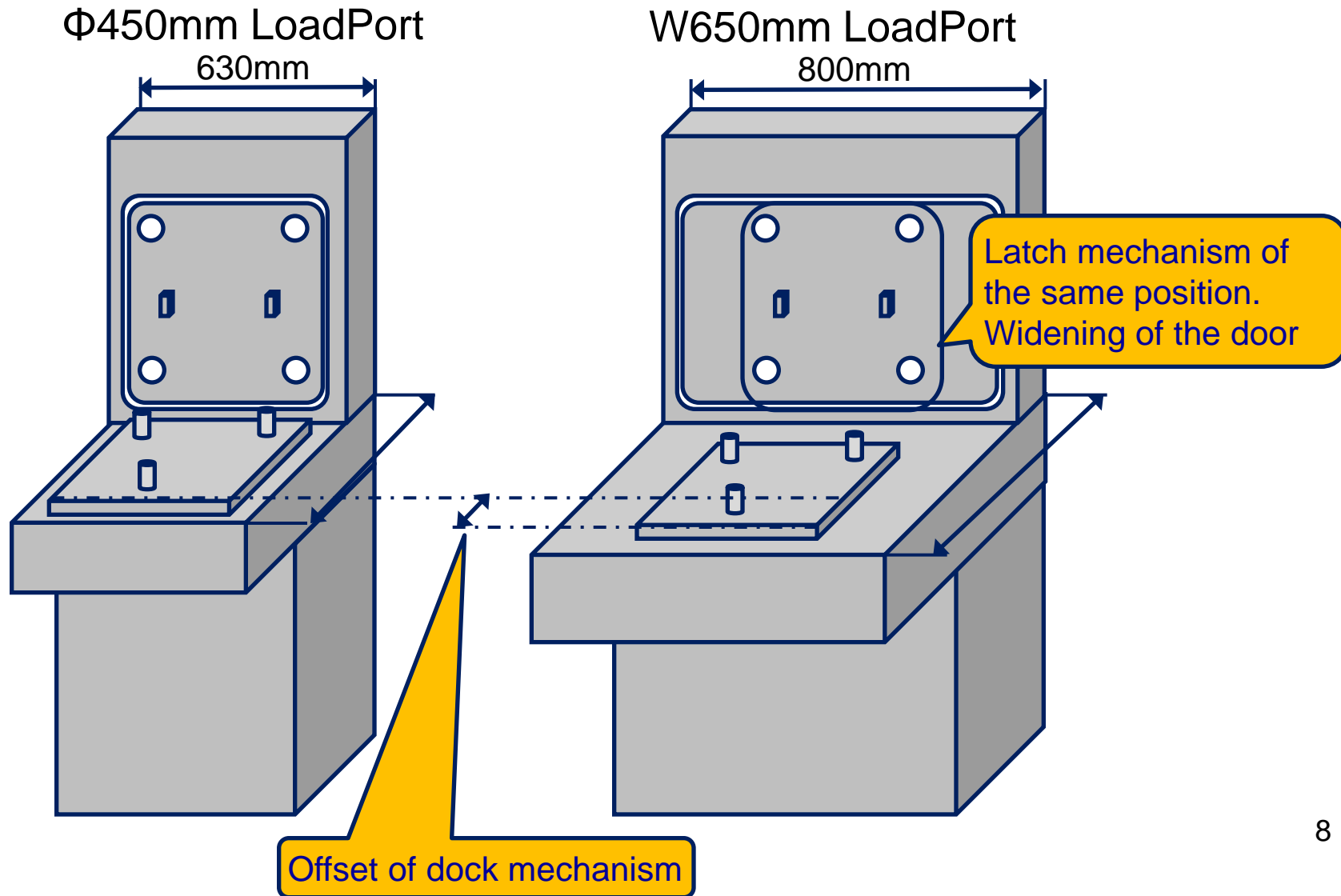
□ Storage Number(Example)

Storage Number	1 st slot height	Slot pitch
6pcs	61mm from HP	50mm
10pcs	41mm from HP	30mm
12Pcs	36mm from HP	25mm

□ Exclusive volumes



3-4. Interface standards of load port side



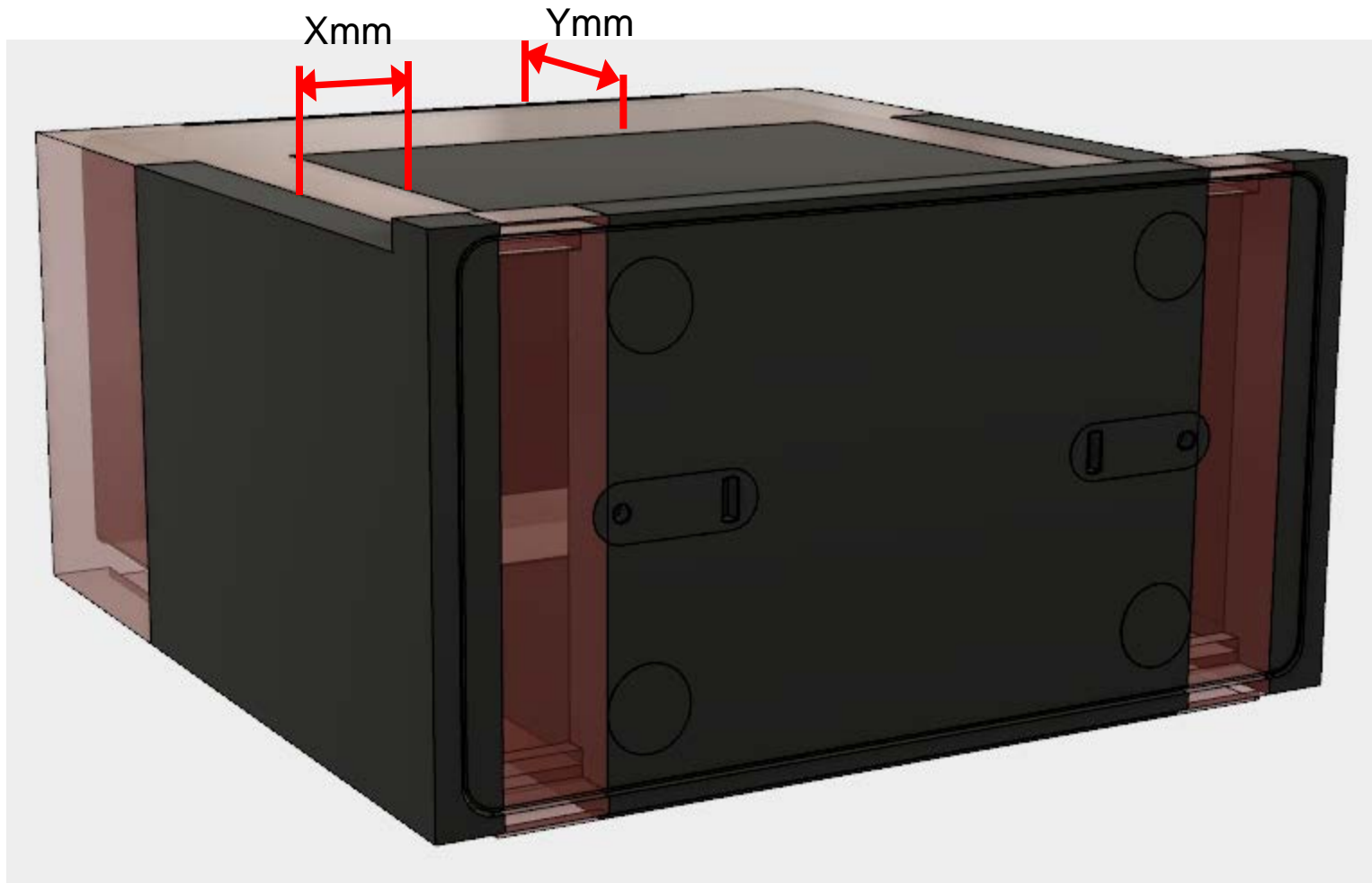
4. Conclusion

- ☐ The Task Force Organization Form(TFOF) will be proposed at 3D Packaging & Integration (3DP&I) Japan TC Chapter meeting on Feb. 5, 2018.
- ☐ Then TF will start to develop the standards.
- ☐ Desired participation of stakeholders

Backup: External dimensions

□ X mm, Y mm to be defined as ranges

For example 0~30mm or 0mm/15mm/30mm



Related 450mm SEMI Standards

- ❑ SEMI AUX23-1113 Overview Guide to SEMI Standard for 450mm Wafers
- ❑ SEMI AUX
- ❑ SEMI E83-0413 Specification for PGV Mechanical Docking Flange
- ❑ SEMI E154-0814 Mechanical Interface for 45 mm Load Port
- ❑ SEMI E156-0710 Mechanical Specification for 450mm AMHS Stocker to Transport Interface
- ❑ SEMI E158-0314 Mechanical Specification for Fab Wafer Carrier Used to Transport and Store 450mm Wafers (450 FOUP) and Kinematic Coupling
- ❑ SEMI E159-0314 Mechanical Specification for Multi-Application Carrier (MAC) Used to Transport and Ship 450 mm Wafers
- ❑ SEMI E162-0912 Mechanical Interface Specification for 450mm Front-Opening Shipping Box Load Port
- ❑ SEMI E166-0814 Specification for 450mm Cluster Module Interface: Mechanical Interface and Transport Standard
- ❑ SEMI G88-0211 Specification for Tape Frame for 450mm Wafer
- ❑ SEMI G92-0814 Specification for Tape Frame Cassette for 450mm Wafer
- ❑ SEMI G95-0314 Mechanical Interface Specification for 450mm Load Port for Tape Frame Cassettes in the Backend Process