

The proposal of 6411 Connector

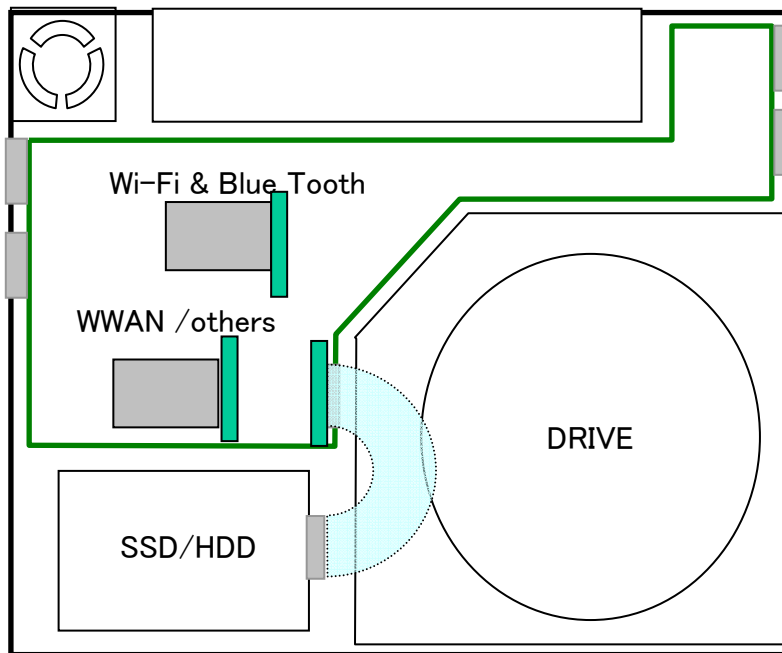
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(Japan)*

Remarks:

The New Generation Form Factor is Intel original program.
Only Connectors introduction will be covered within following presentation.
Final confirmation of all design factors have to subject to Intel
Most update Intel **NGFF** design guide.

*Focus to the New Architecture
for New Mobile Computing*

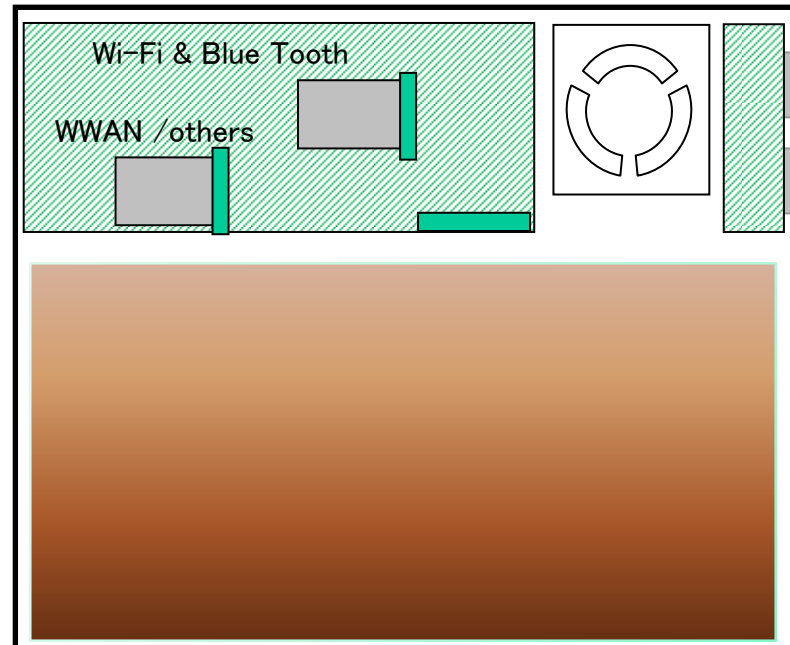
Current Design of NB-PC



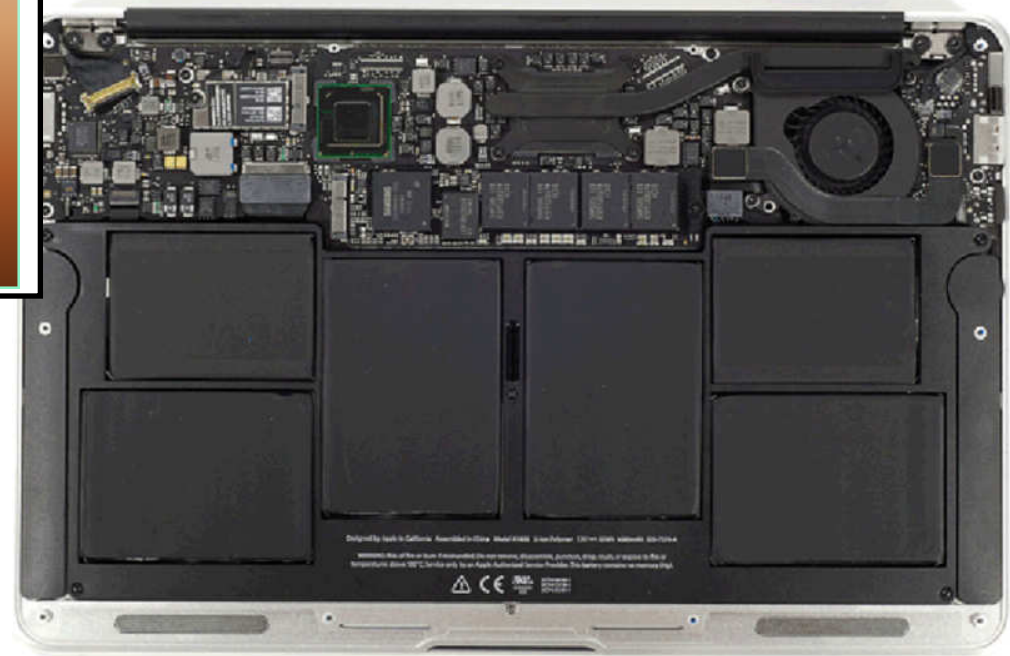
Existing design layout of NB-PC, it required many kind of connectors for Wi-Fi, WWAN, SSD and other add on function module as proprietary.



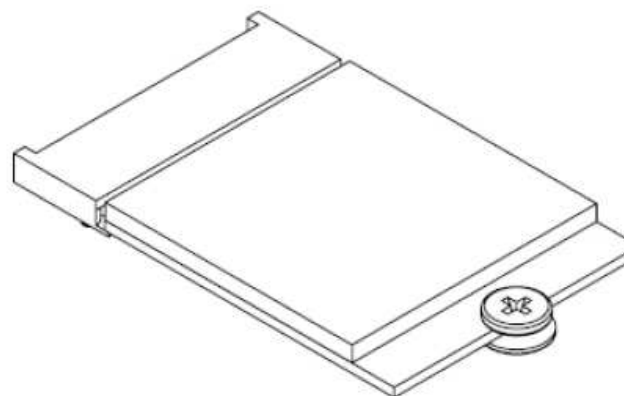
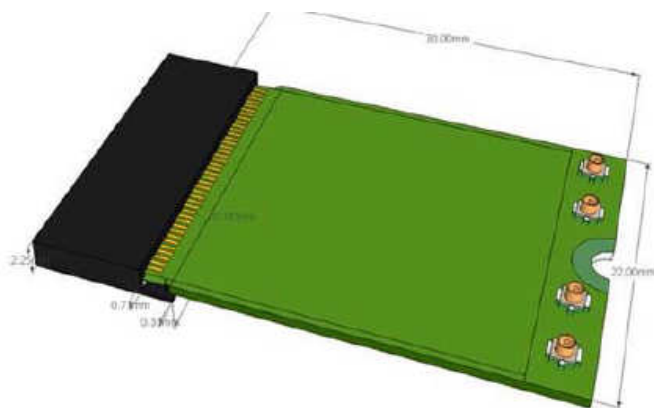
Current Design of Ultrabook



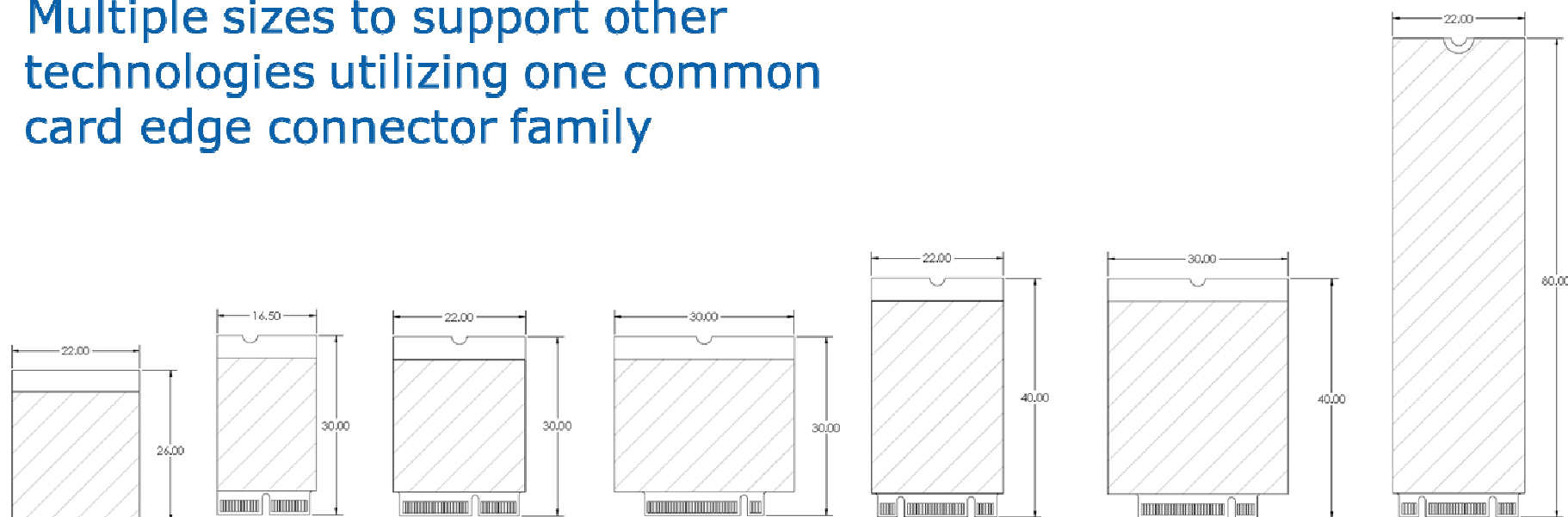
In case of design the layout of Ultrabook. It is about the same situation. Many kind of connectors applied for different modularized function.



Multi Function card design



Multiple sizes to support other technologies utilizing one common card edge connector family



**Solderable
Wi-Fi**

**Smallest
W-iFi + BT
Future size
reduction**

**Standard
Wi-Fi + BT**

Multi-Comms,

SSD Cache

SSD, WWAN

SSD

New form factors are intended to support multiple function add-in cards/modules including:

Wi-Fi

Bluetooth

Global Navigation Satellite Systems (GNSS) 5

Near Field Communication (NFC)

Wireless Giga communication (Wi-Gig)

Wireless Wide Area Network (WWAN / 2G, 3G and 4G)

Solid-State Drive (SSD)

Other & Future Solutions (e.g. Hybrid Digital Radio (HDR)) 10

The NGFF Specification will cover multiple Host Interface solutions including:

PCIe, PCIe LP (Generation-3)

SSIC

USB (2.0, HS, 3.0)

SDIO 15

UART

PCM/ I2 S

I2 C

SATA

Display Port 20

And future variants of the above

In light of the fact that the number of Host Interfaces has dramatically increased and in order to support the multitude of Commons and other solutions typically integrated into NB and ULT based platforms, there is a need to clearly define several distinct Slots:

A Connectivity Slot (typically Wi-Fi, BT, NFC or Wi-Gig) which will be designated Slot A 25

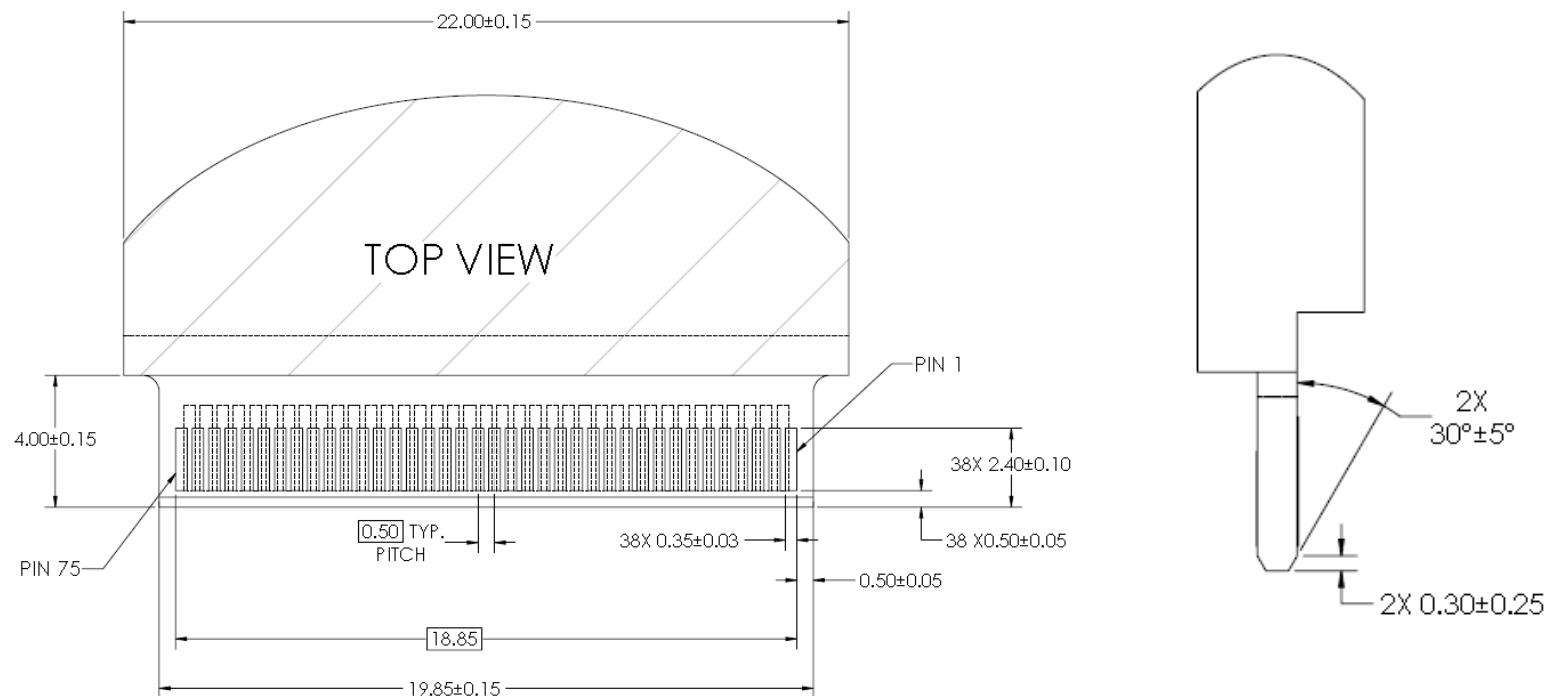
A WWAN/SSD/Other Slot that will support various WWAN+GNSS solutions, various SSD configurations and potentially Other yet undefined solutions which will be designated as Slot B

Several other Slot definitions have been identified in support of other platforms and platform options. This includes: 30

A 4 lane PCIe SSD Slot designated Slot C

Mechanical Card Edge

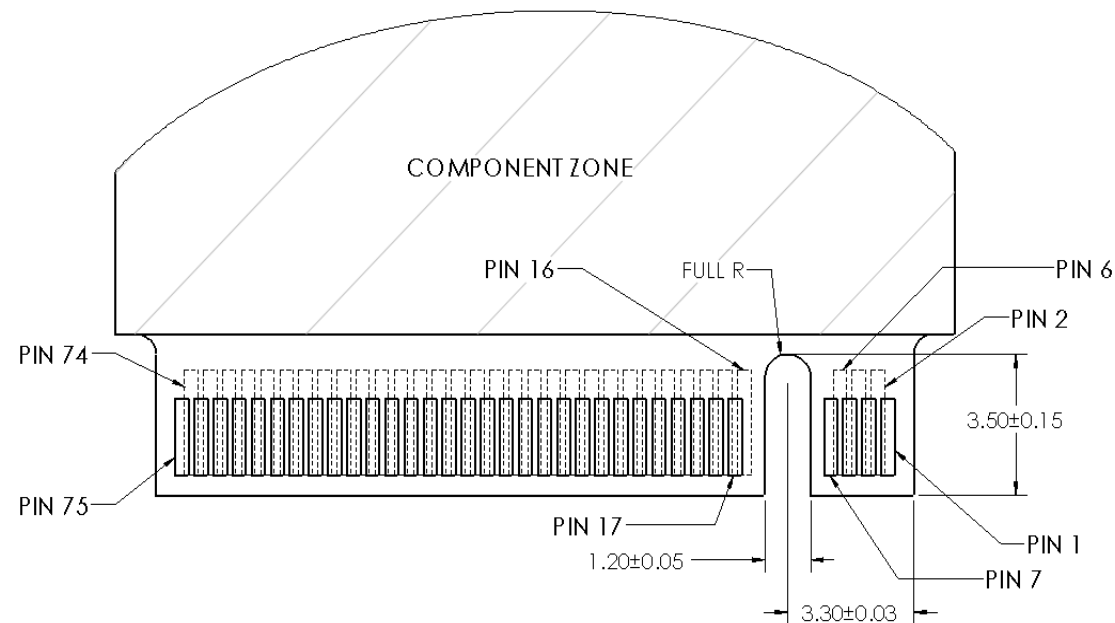
The Full Pattern prior to adding a keying slot yields 75 Pins (38 top/37 bottom). The Pins do not change their designation. This allows for the keying to move.



Key Implementation

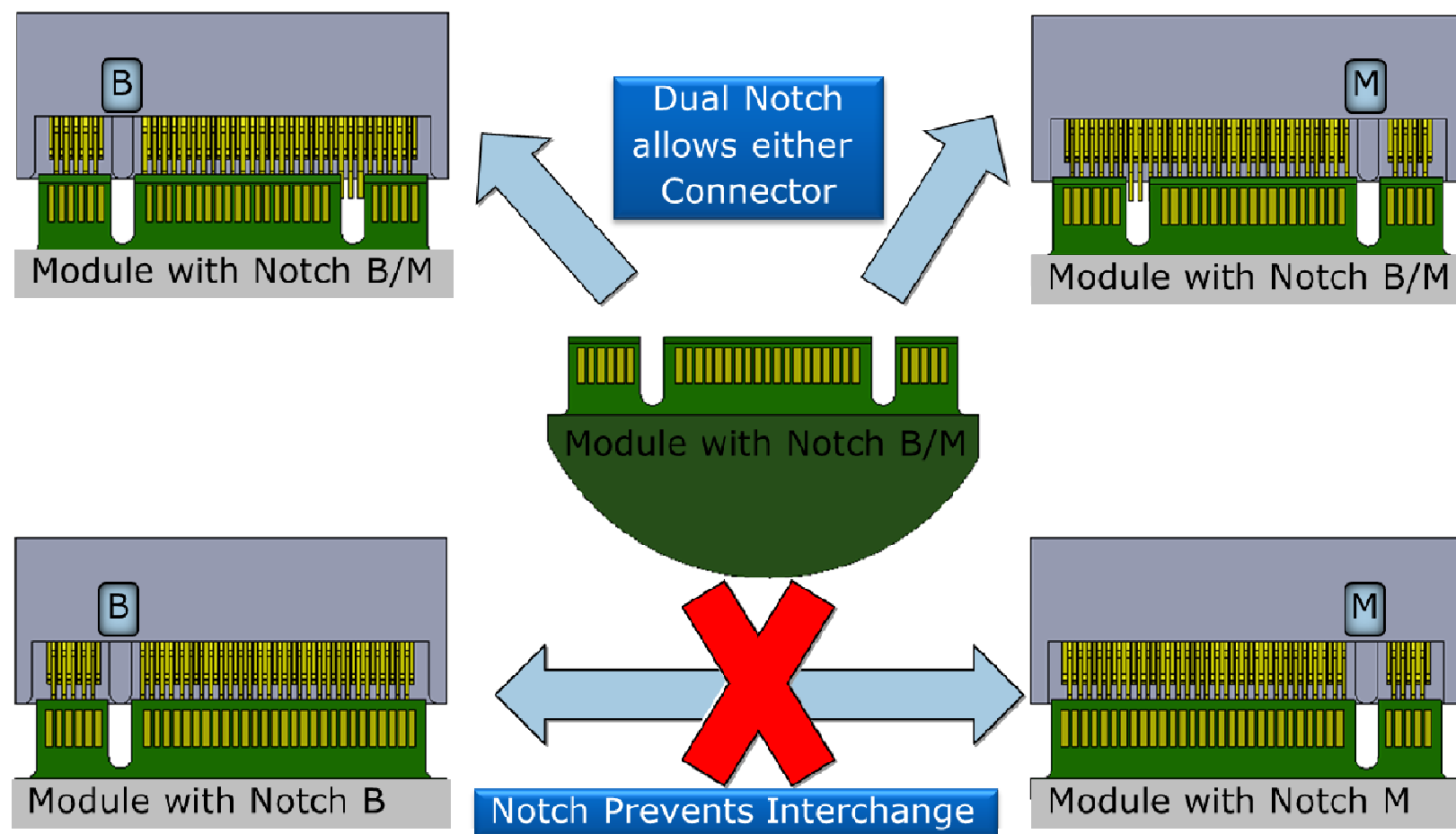
Example only:

This example the slot removes
Pin designators Pin 8 through Pin 15.
Taking the total pin count of 75 to 67 (a reduction of 8 pins)



KEYING OPTION A
FRONT VIEW

NGFF Dual Notch Option



New form factors is intended to succeed the space saving and cost down for NB-PC, Ultrabook and Tablet.

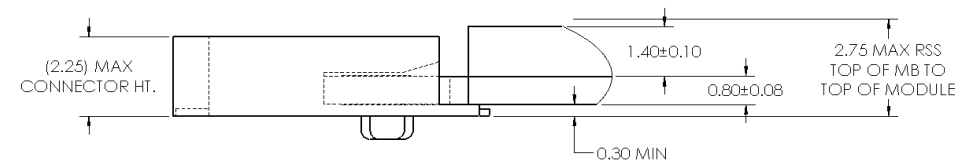
Connector

System Connector

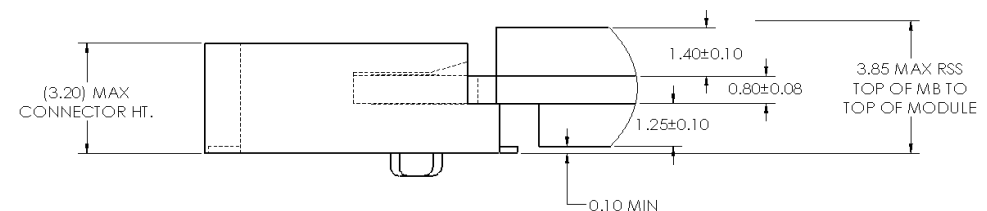
3 styles of system connector are planned

- 1.Top Mount for single sided cards.
- 2.Top Mount for dual sided cards.
- 3.Mid mount for single sided cards.

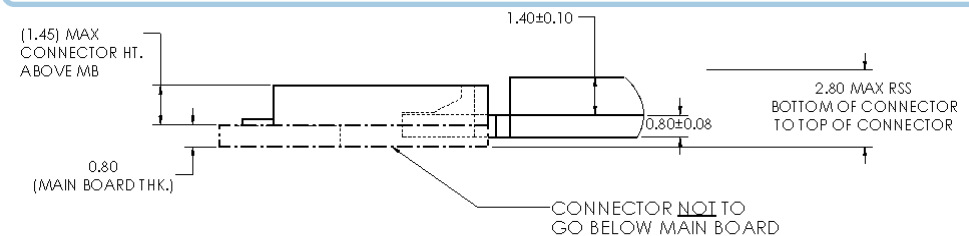
Top Mount Connector for single sided cards



Top Mount Connector for double sided cards

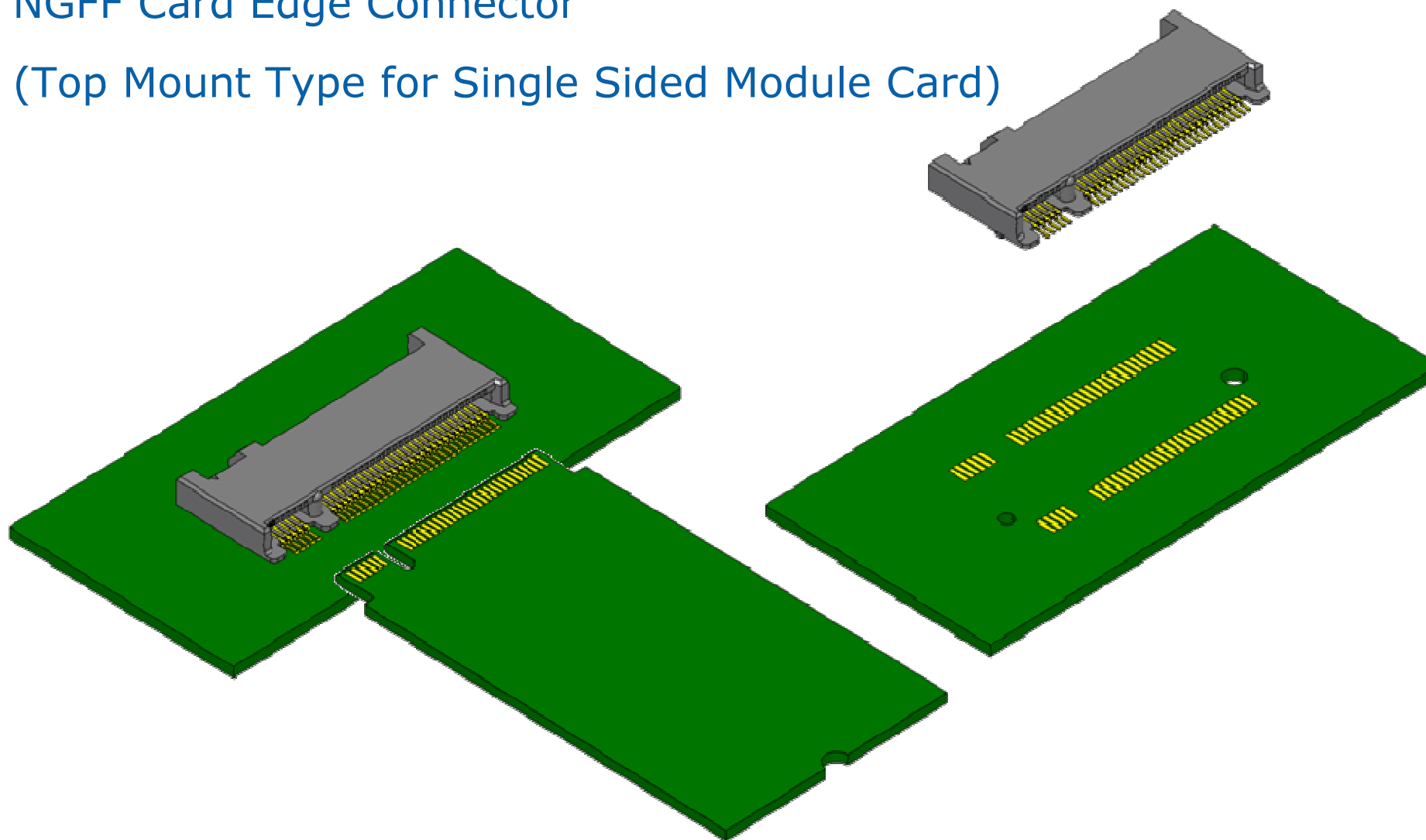


Mid Mount Connector



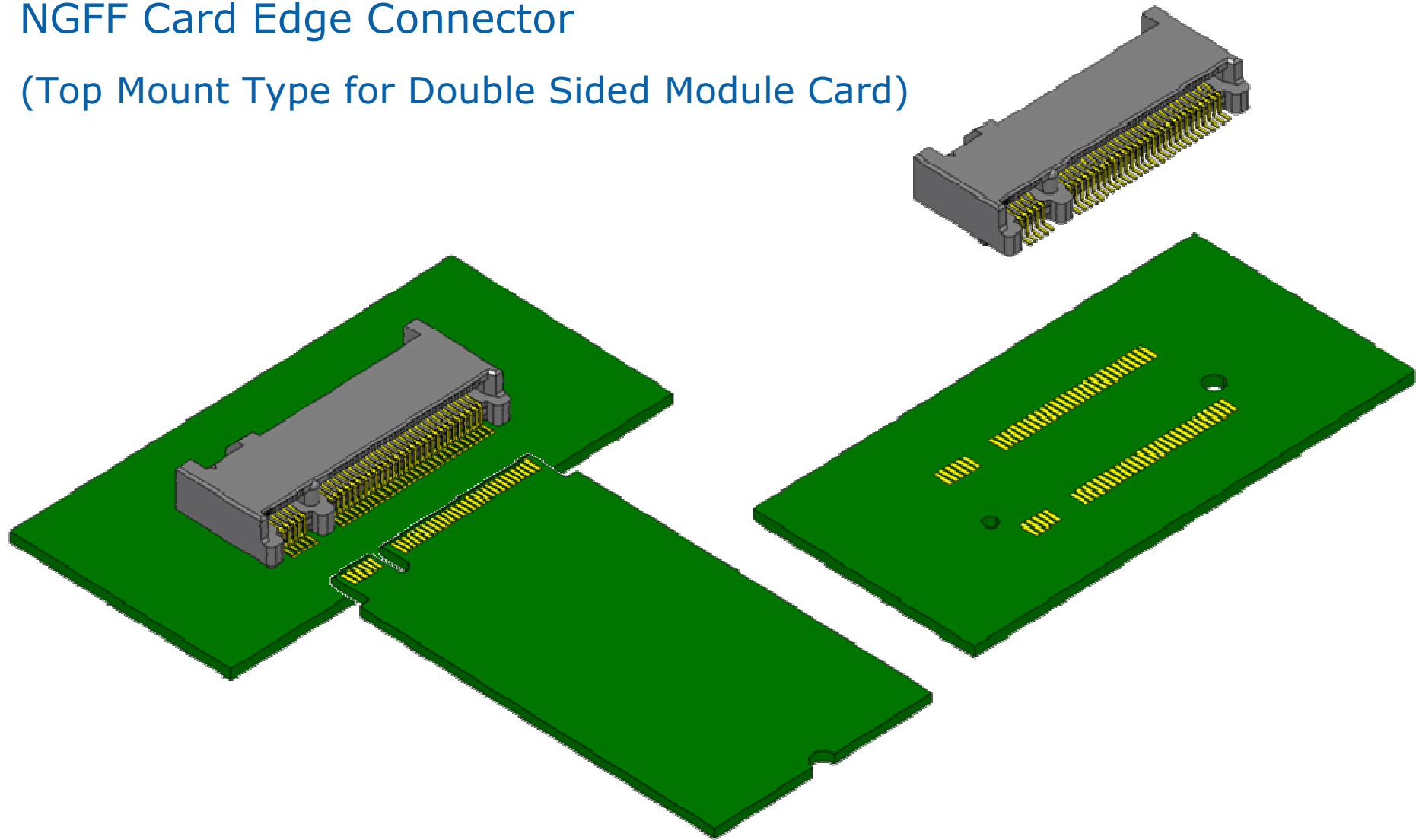
NGFF Card Edge Connector

(Top Mount Type for Single Sided Module Card)

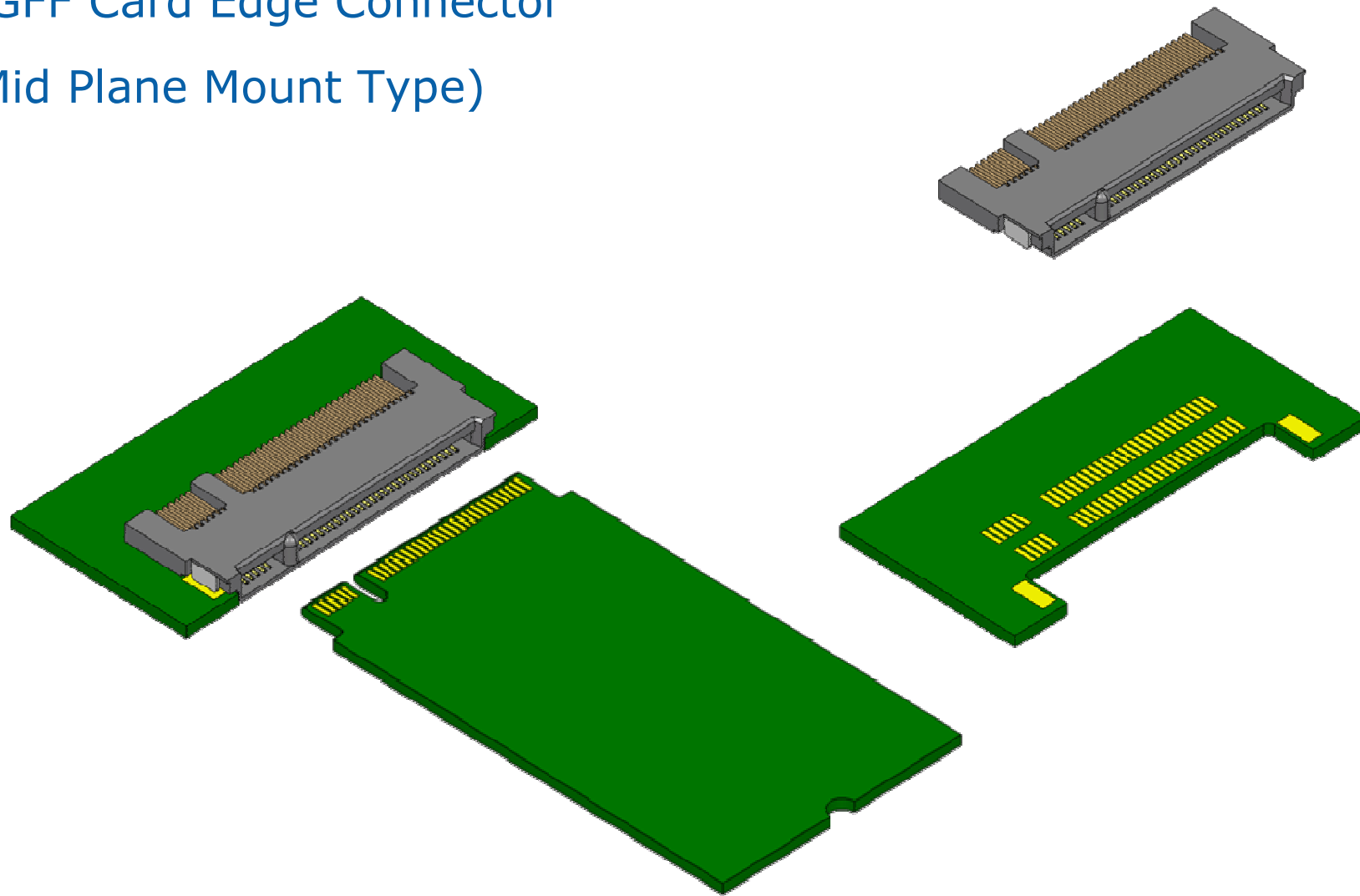


NGFF Card Edge Connector

(Top Mount Type for Double Sided Module Card)



NGFF Card Edge Connector (Mid Plane Mount Type)



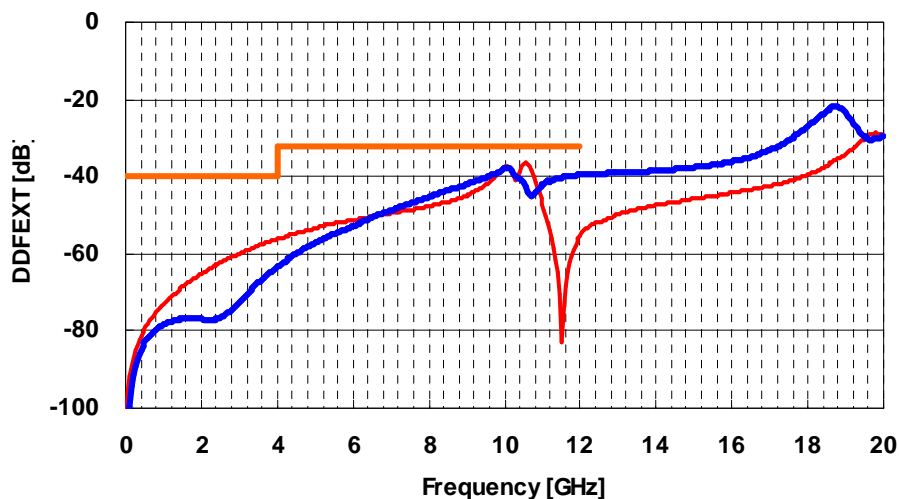
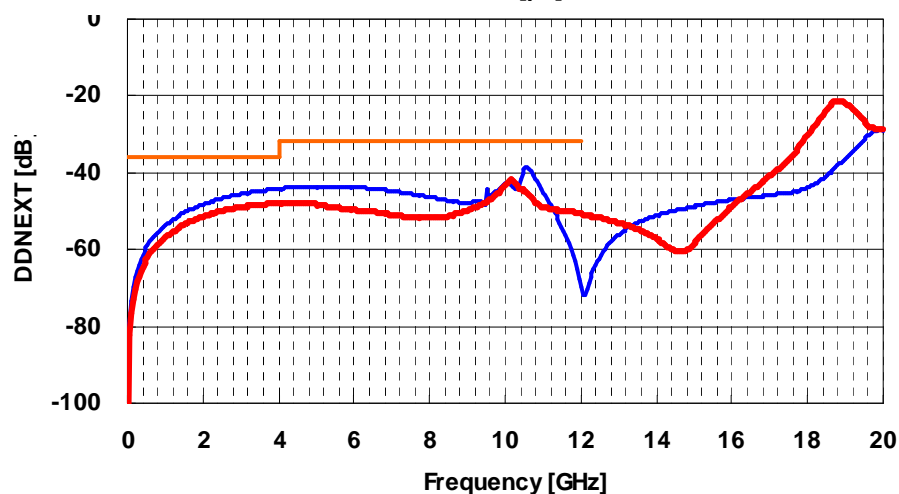
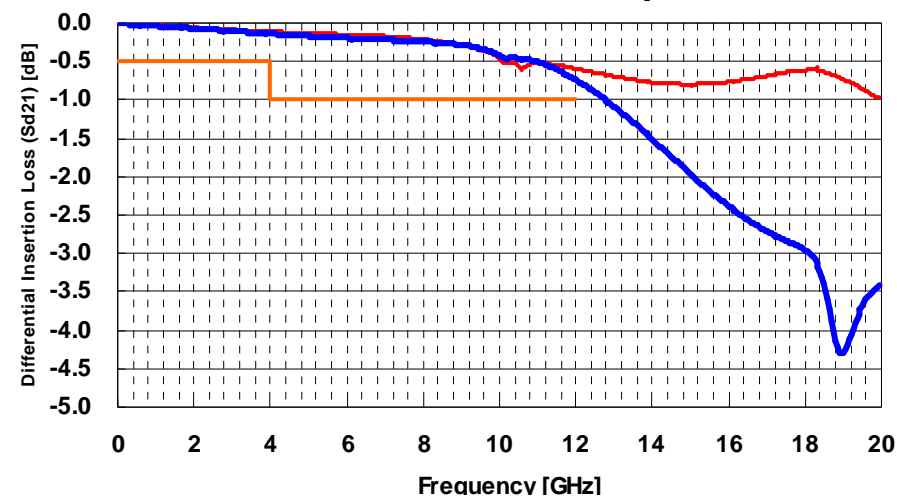
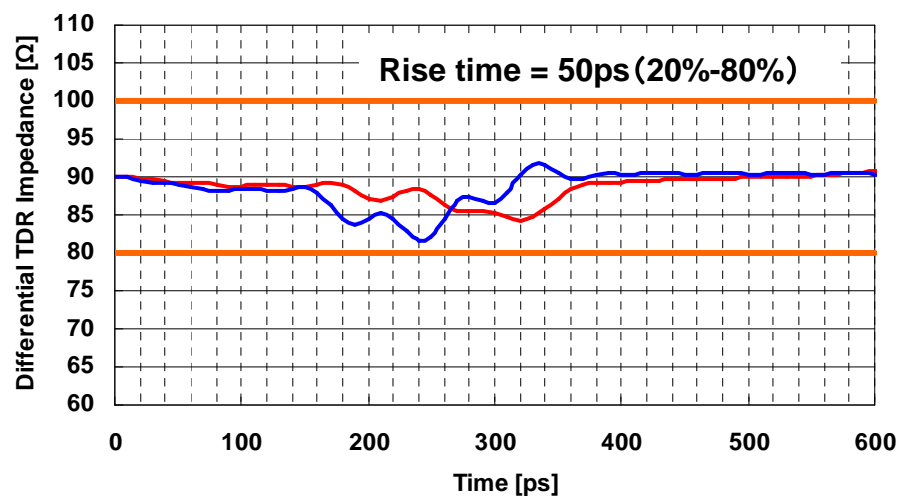
Specifications

Special Spec for NGFF

- 1.Pass 285G shock/drop testing.
- 2.Pass the 8Gbps high speed transmission for PCIe Generation3.

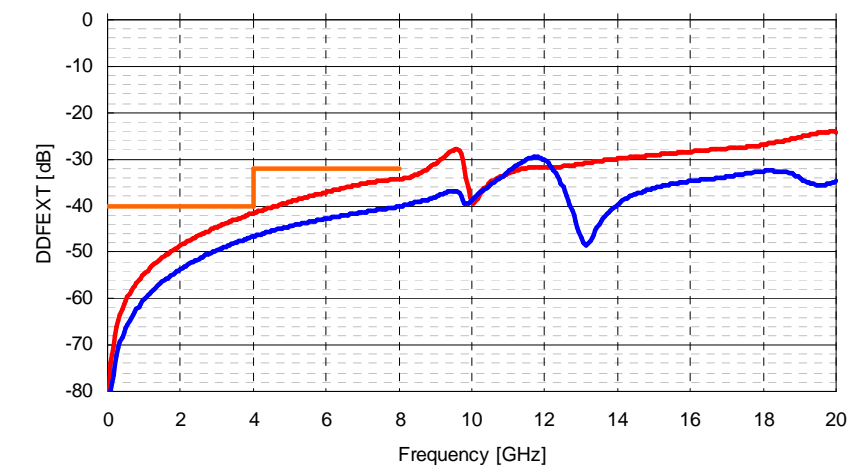
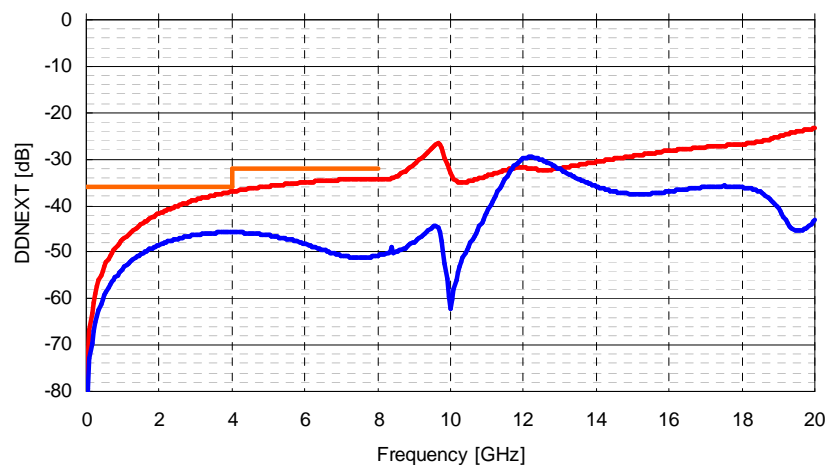
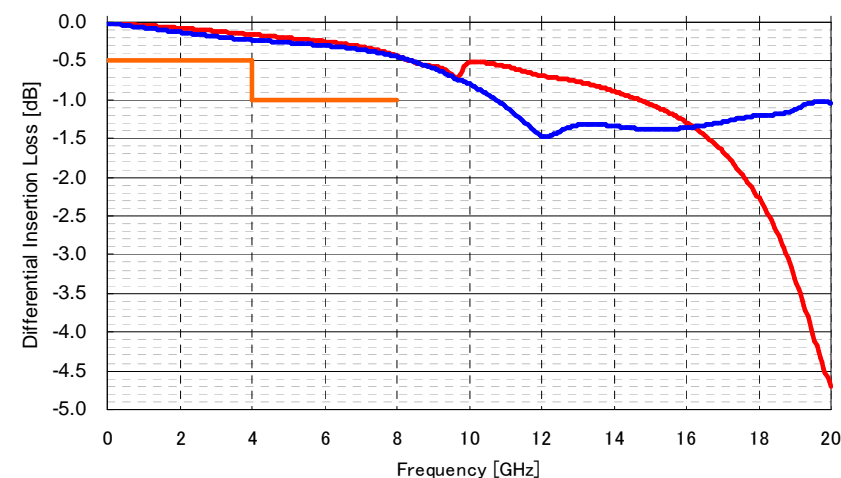
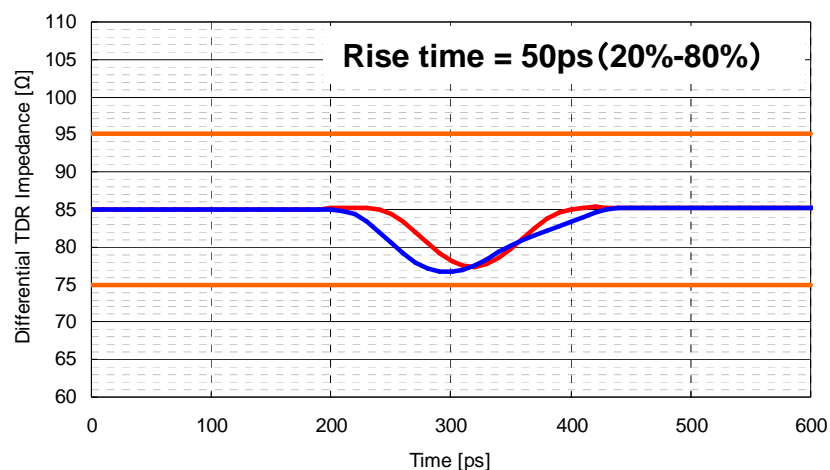
Simulation Result of High speed transmission for PCI-Gen3 (Top Mount / Dual Side Module)

— : Upper Contact
— : Lower Contact
— : Requirement

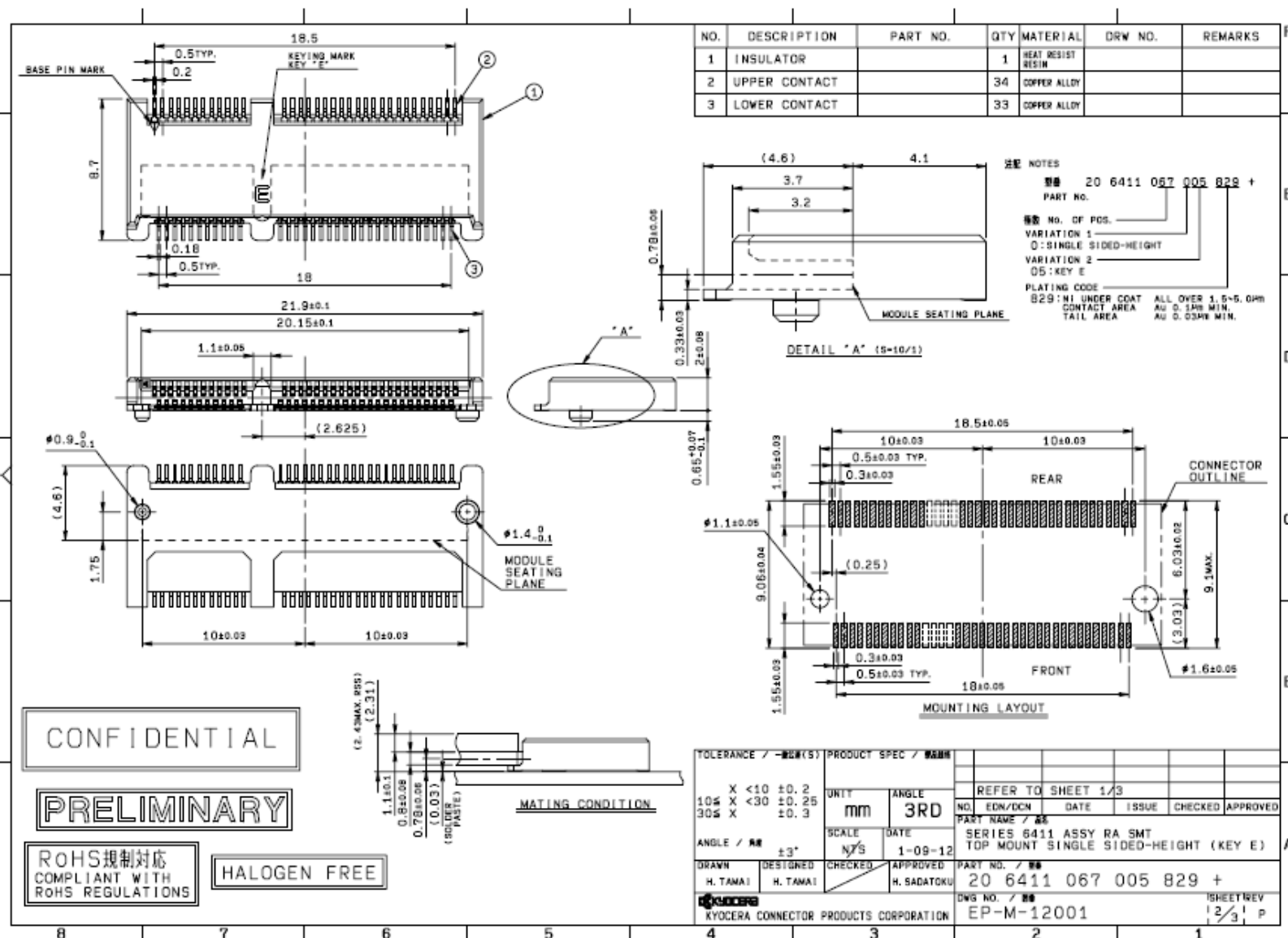


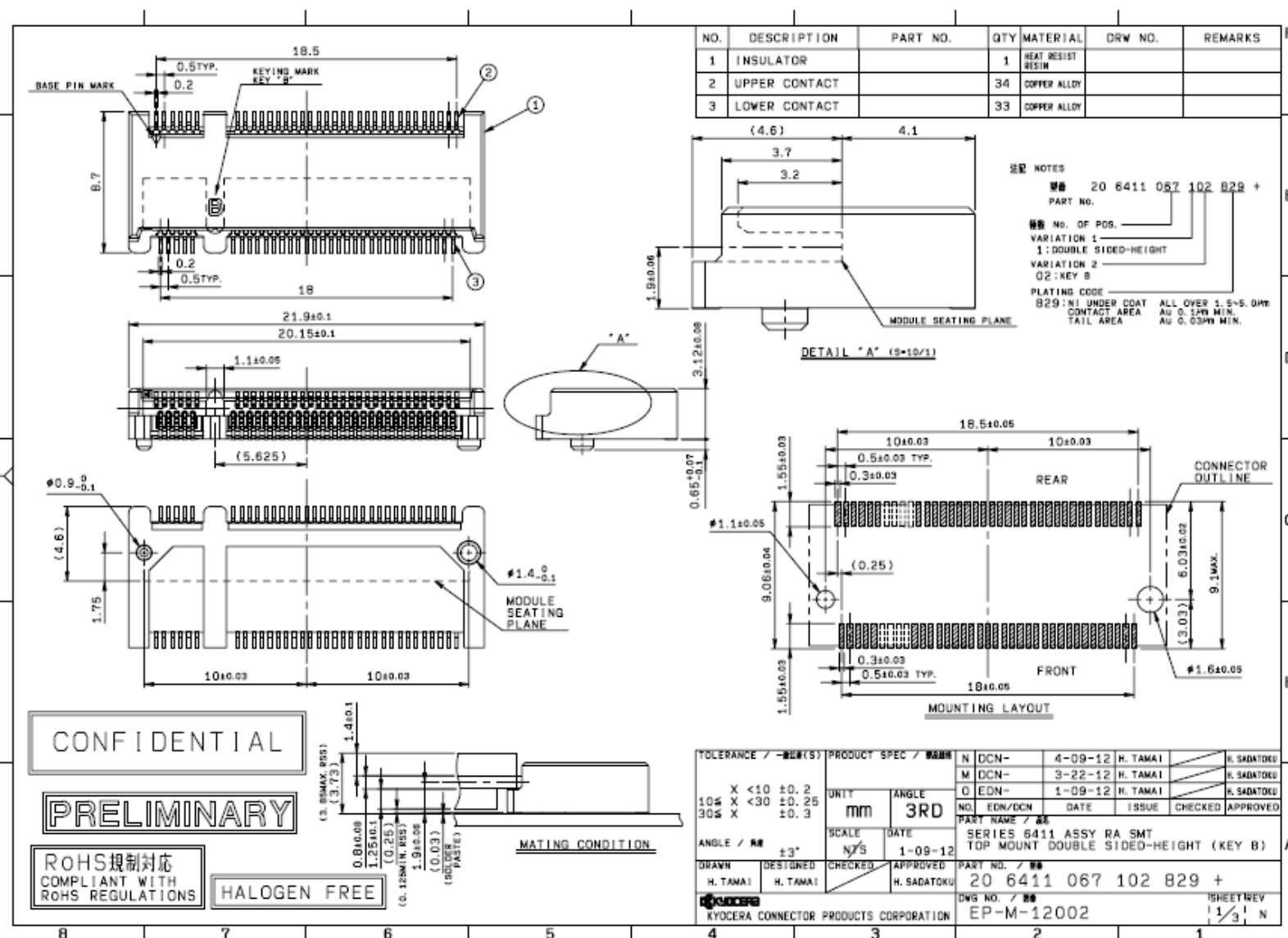
Simulation Result of High speed transmission for PCI-Gen3 (Mid Mount / Single Side Module)

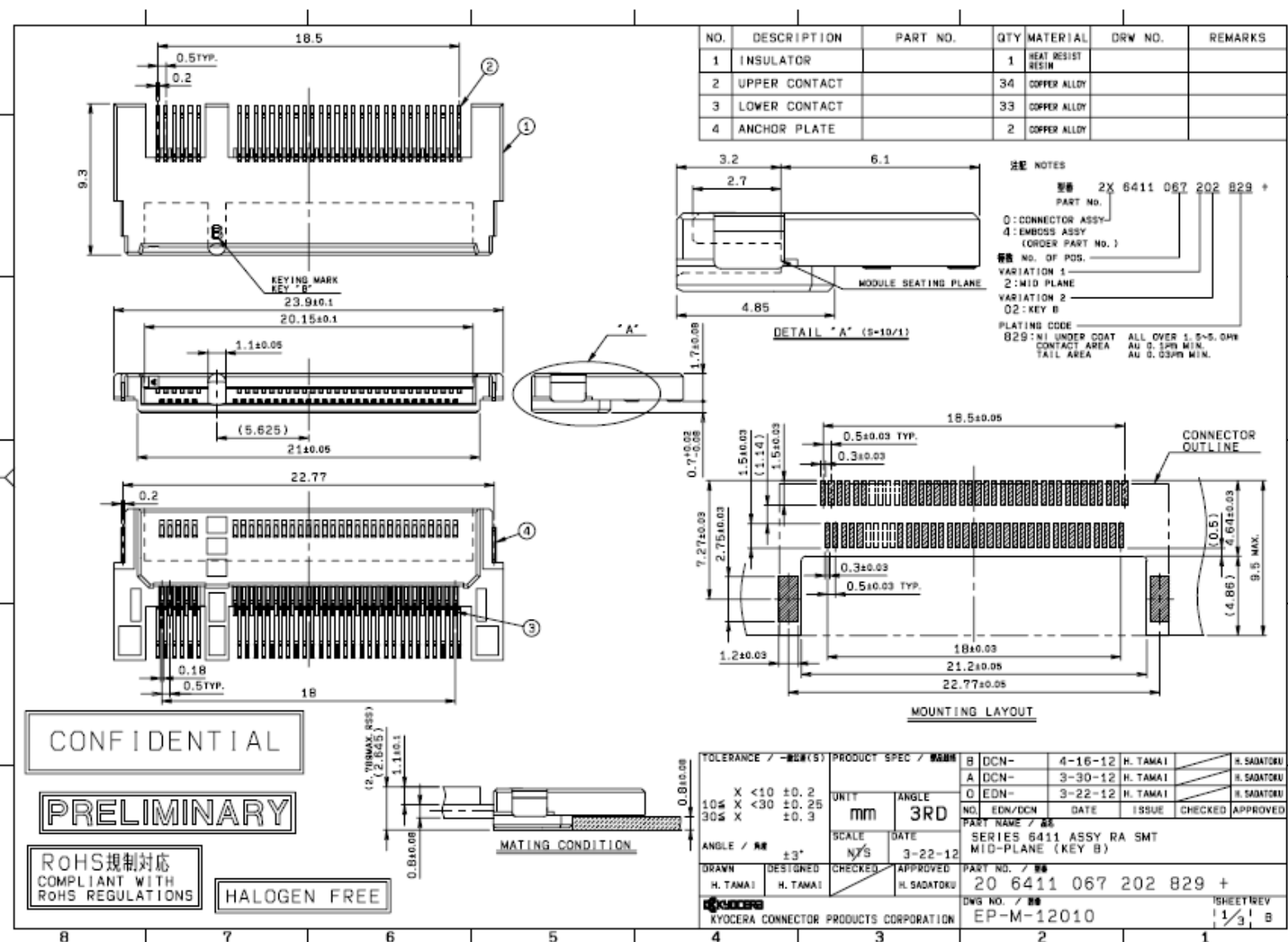
— : Upper Contact
— : Lower Contact
— : Requirement



Drawing







Thank you very much!