TB-2211

XCede Connector Design Guidelines

Revision "H"

Specification Revision Status

Revision	SCR No.	Description	Initial	Date
A	S2195	New Release	M.Spacone	12/4/12
B	S2275	Updated Sequencing Chart	M.Spacone	4/4/13
C	S2432	Added XCede Plus	E. Lukin	09/06/13
D	S2478	Update XCede Plus C-use Drawing numbers	E. Lukin	10/01/13
E	S2500	Added XCede Plus DC Module Removal and Replacement reference document	E. Lukin	11/04/13
F	S2766	Added XCede Plus 8 Pair Mating Consideration	E. Lukin	02/27/14
G	S3086	Updated Connector Mating Sequence, Section 7.0, General cleanup, added X2	B. Merrill	09/10/14
H	S8500	On sht 28 drawing part number was C951-401A-150 is C951-401A-500	D Smith	9/24/20

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Table of Contents

1 Introduction

1.1 Scope

1.1.1 This document contains a description of the design rules for the XCede, XCede Plus, and X2 connector system. This document is intended to serve as an application guide for designing the XCede, XCede Plus, and X2 connector system into various customer system configurations.

1.2 Reference Documents:

1.2.1 TB-2150 XCede and XCede Plus General Product Specifications
1.2.2 TB-2149 XCede and XCede Plus Routing Guidelines
1.2.3 TB-2197 XCede and XCede Plus Backplane Connector Press-Fit Installation Process
1.2.4 TB-2198 XCede Daughtercard Connector Installation
1.2.5 TB-2298 XCede Plus Press-Fit Installation Process
1.2.6 TB-2212 XCede Stacker Connector Press-Fit Installation Process
1.2.7 TB-2217 XCede Daughtercard Module Removal and Replacement
1.2.8 TB-2302 XCede Plus Daughtercard Module Removal and Replacement
1.2.9 TB-2210 XCede and XCede Plus Backplane Removal and Reinsertion Process
1.2.10 TP-208105 XCede Telcordia GR-1217-Core CO Qualification Data Report

1.3 Document Confidentiality

1.3.1 This document is company confidential and may be used only by customers for their internal use. This document contains proprietary information, which is not to be used in any way not previously approved by Amphenol TCS.

1.4 XCede General Product Descriptions

1.4.1 The standard XCede differential interconnect platform consists of connectors featuring 2 Pair, 3 Pair, 4 Pair, 5 Pair and 6 Pair variations. The interconnect system features solderless eye-of-the-needle press-fit terminations (with Pb free plating) to the printed circuit board and high temperature (260C) SMT compatible plastic material. XCede incorporates a unique 3-D resonance damping shield that enables low crosstalk across a wide frequency spectrum. The interconnect system can be used in a "mid-plane" configuration where

daughtercards plug into the backplane from both sides. The XCede interconnect platform also has available L Series, 4 Pair Stacker, and RAM (Right Angle Male). The XCede interconnect can also be used with GbX components on the same card edge.

1.4.2 The daughtercard connector building blocks include signal modules, power modules, guidance/polarizing modules, grounded guidance modules, joiners, and end caps that are all assembled to a metal stiffener.

1.4.3 The backplane connectors are typically arranged in 6 and 8 column modules for the standard product and 5 column modules for the L-Series product. For the availability of non-standard sizes please contact Amphenol TCS application engineer.

1.5 XCede Plus General Product Descriptions

1.5.1 The XCede Plus differential interconnect platform consists of with and without extra ground connectors featuring 4 Pair, 5 Pair, 6 Pair and 8 pair variations. The interconnect system features solderless eye-of-the-needle press-fit terminations (with Pb free plating) to the printed circuit board and high temperature (260C) SMT compatible plastic material. XCede incorporates a unique 3-D resonance damping shield that enables low crosstalk across a wide frequency spectrum. The interconnect system can be used in a "mid-plane" configuration where daughtercards plug into the backplane from both sides.

1.5.2 The daughtercard connector building blocks include signal modules, power modules, guidance/polarizing modules, grounded guidance modules, joiners, and end caps that are all assembled to a metal organizer (stiffener).

1.5.3 The backplane connectors are typically arranged in 6 and 8 column modules for the standard product. For the availability of non-standard sizes please contact Amphenol TCS application engineer.

2 Design Guidelines for Daughtercard Connectors

2.1 Scope

2.1.1 This section describes the preferred daughtercard connector design

2.2 Stiffeners

2.2.1 The daughtercard connectors are configured to fit on a mechanical stiffener. The signal modules, guide modules, power modules and other components are placed onto the stiffeners in the specific configuration required by the customer. This is usually determined by the design of their backplane slot. This stiffener keeps the daughtercard components on the 1.85 mm pitch.

2.2.2 The Standard XCede daughter card configuration may also be determined by the XCede RAM Connector (Right Angle Male) for coplanar applications to which it will mate.

2.2.3 The stiffener can help to straighten the board edge but does not necessarily preclude the need for additional board stiffening.

2.3 Daughtercard Connector Configurations

2.3.1 Daughtercard connector configurations are determined by the customers' system application. Amphenol TCS recommends that for the optimal connector

configuration design the connectors be grouped in increments of 4, 6 and 8 column (also referred to as position). This matches the 4, 6 and 8 column groupings of the backplane modules. Guide modules and power modules are typically placed on the ends of the connector to protect Daughtercard connector from handling damage. See Figure 1 for the typical XCede connector configuration.

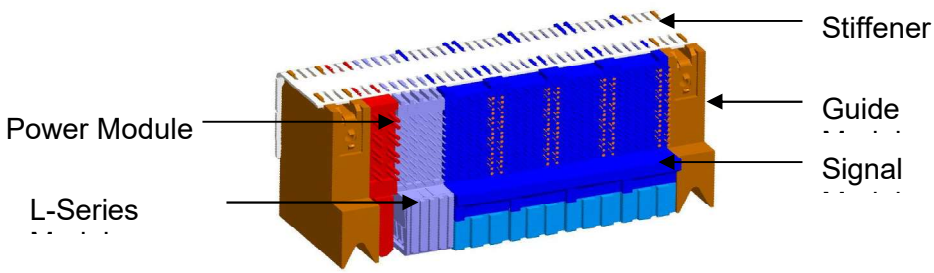

Figure 1: Typical Daughtercard Connector Configuration

XCede and XCede Plus connectors can be end stackable with each other only in certain configurations because of the protrusion on the B wafer side of the XCede Plus housings (see figures 2 and 3).

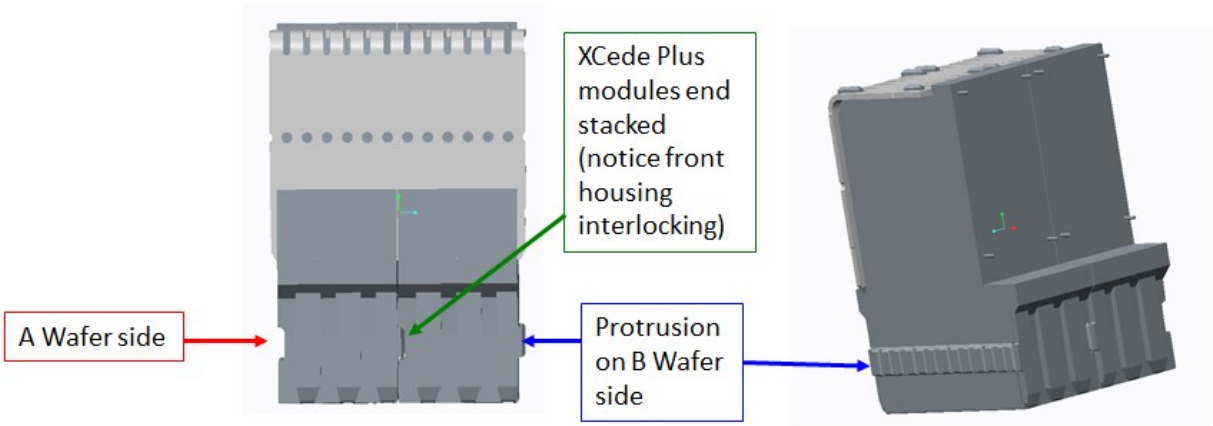

Figure 2: XCede Plus Module

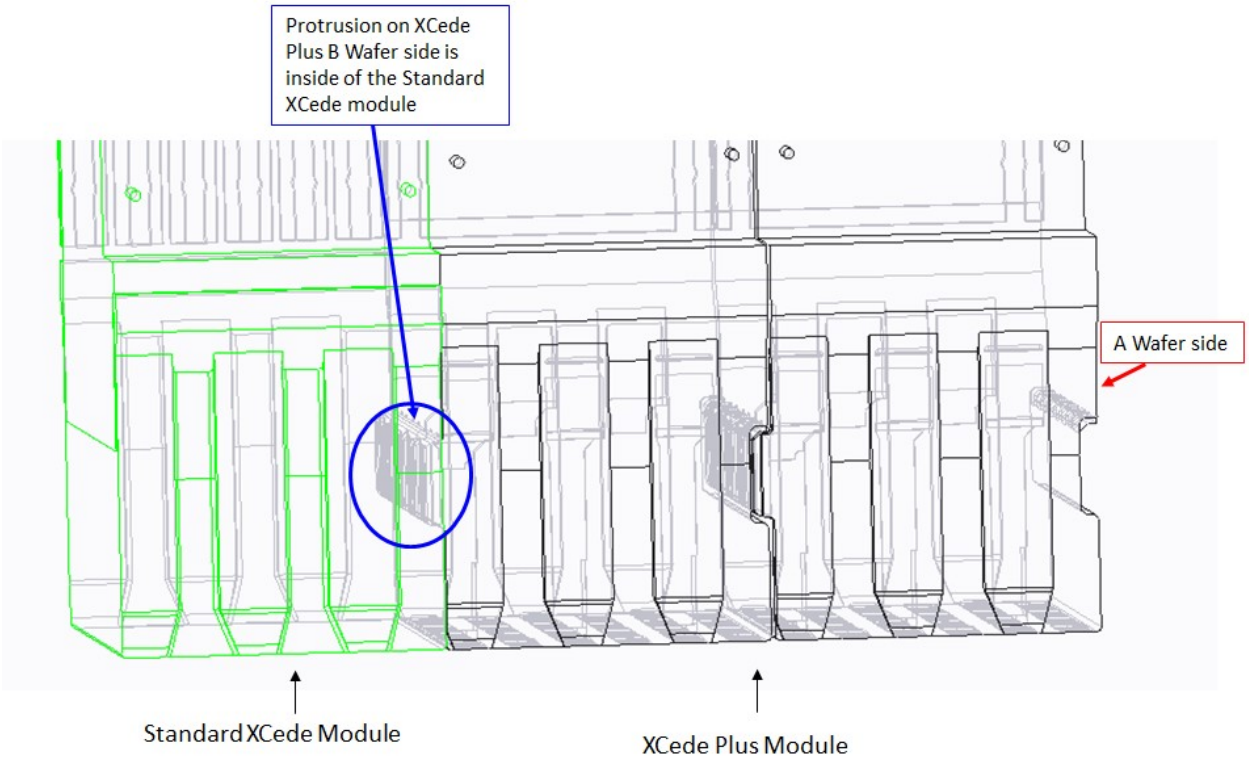

Figure 3: Example of a Standard XCede Component (standard XCede Module, L series and XCede Guide modules) <u>INCORRECTLY</u> stacked next to an XCede Plus module

2.3.2 Configurations that allow XCede and XCede Plus modules to be end stackable include:

A Wafer Side Stacking:

1. If an XCede component (standard XCede Module, L series and XCede Guide modules) is stacked next to the A wafer side of a XCede Plus module. See Figure 4 for an Example.

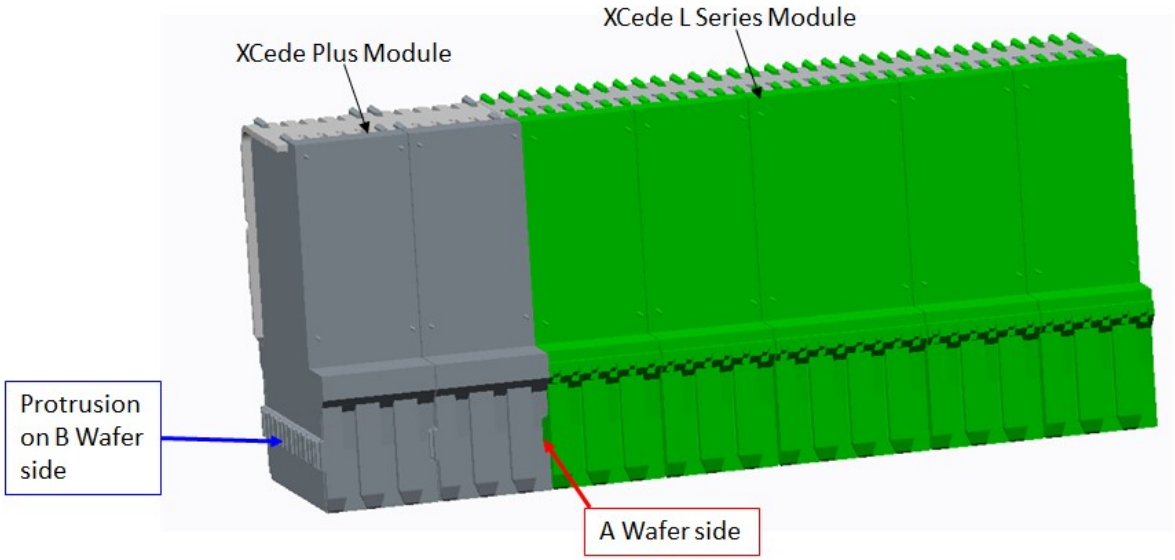

Figure 4: Example of a Standard XCede Component (standard XCede Module, L series and XCede Guide modules) CORRECTLY stacked next to the A Wafer side of an XCede Plus module

B Wafer Side Stacking:

1. If an XCede component (standard XCede Module, L series and XCede Guide modules) is stacked next to the B wafer side of an XCede Plus Module then an *XCede Plus guide module* needs to be in between the XCede Plus module and XCede component. XCede Plus guides do not hit the protrusion on the B wafer due to the notch design. See Figure 5 for an example.
2. If an XCede Plus Guide cannot be used then *a one space gap on stiffener* must be present between the B wafer side of the XCede plus module and the neighboring XCede component (standard XCede Module, L series and XCede Guide modules). See figure 6 for an example.

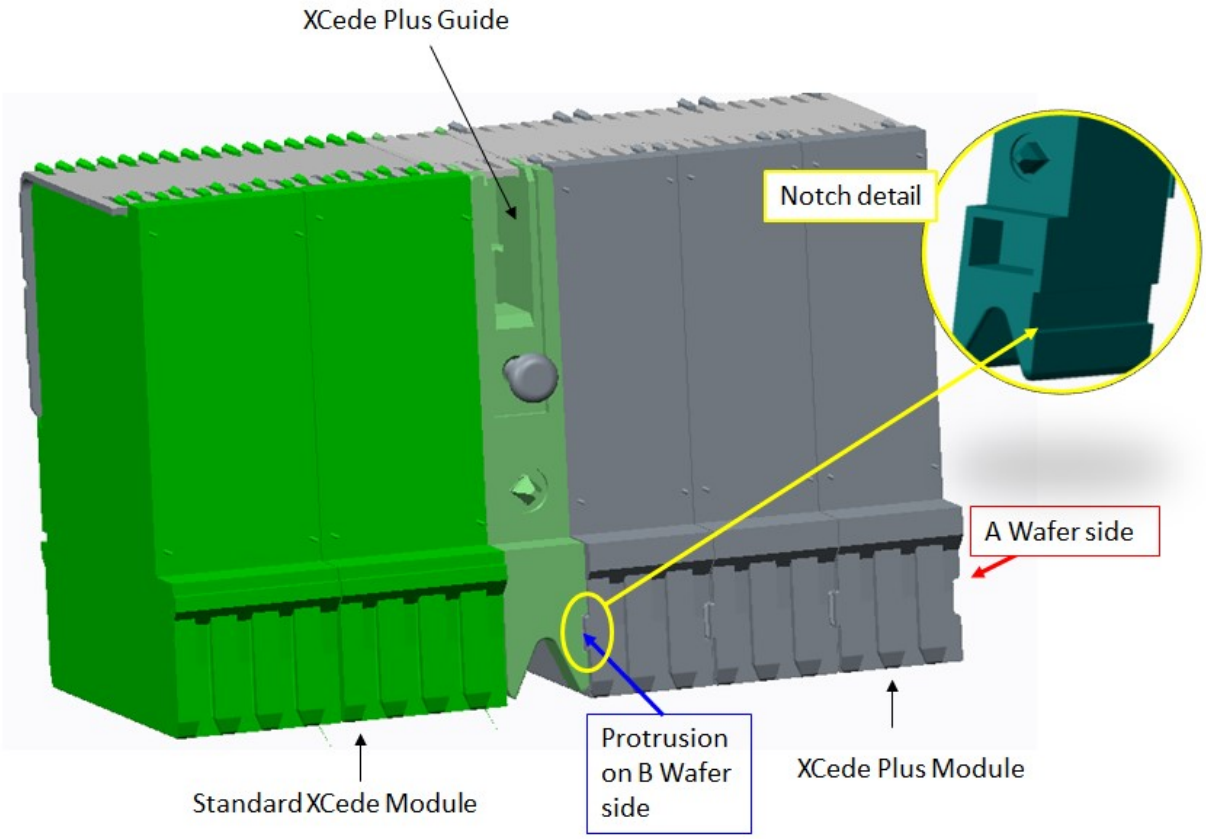

Figure 5: Example of a Standard XCede Component (standard XCede Module, L series and XCede Guide modules) <u>CORRECTLY</u> stacked next to the B Wafer side of an XCede Plus module using an *<u>XCede Plus Guide</u>*

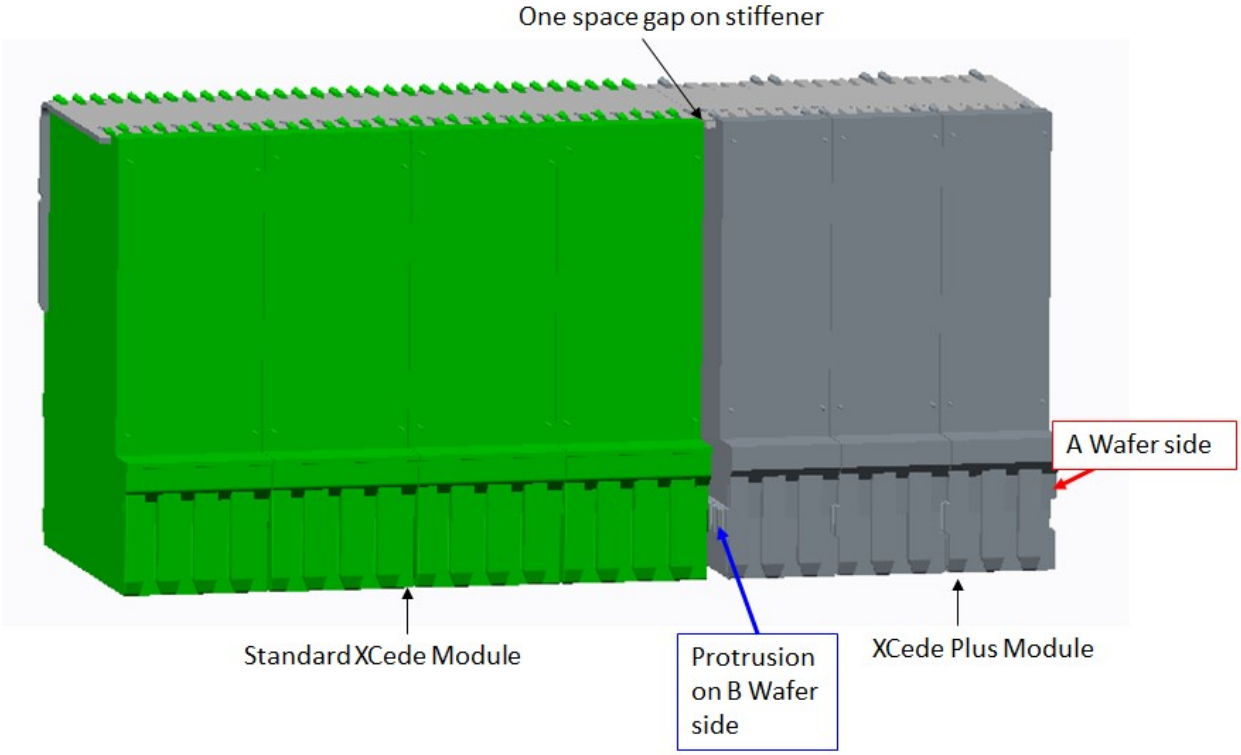

Figure 6: Example of a Standard XCede Component (standard XCede Module, L series and XCede Guide modules) <u>CORRECTLY</u> stacked next to the B Wafer side of an XCede Plus module using a one space gap on stiffener

2.4 Daughtercard Connector Lengths

2.4.1 The minimum length of a daughtercard connector is determined by the minimum required number of signal modules and other components. The minimum number of signal modules is 3 for a standard configuration, for other configurations requiring less than 3 signal modules contact Amphenol TCS Application Engineer. The maximum daughtercard length is dependent on the number of signal modules. Refer to Table 1 for maximum lengths.

Table 1: Maximum Daughtercard Connector Length

Product Family	Maximum DC Length, mm (# of modules)
2 Pair	304.8 (8)
3 Pair	304.8 (8)
4 Pair	304.8 (8)
5 Pair	304.8 (6)
6 Pair	304.8 (6)
8 Pair	304.8 (4)

2.4.2 The minimum number of power modules on a stiffener is 3, when used as a stand-alone power connector without other components.

2.5 Daughtercard Joiner Modules

2.5.1 A Joiner module is a component that links two stiffeners together mechanically. The Joiner Module is pushed onto the daughter card connectors after they have been applied to the board.

2.5.2 If a connector needs to be longer than 304.8 mm (approx. 12"), then the connector must be divided into segments of 304.8 mm or less and connected using a Joiner Module. The longest individual stiffener length will be 304.8mm long with an affective usable length of 303.5 mm. Please consult your Amphenol TCS Application Engineer for connectors over 508 mm (20"). Figure7 shows a connector configuration with a joiner module.

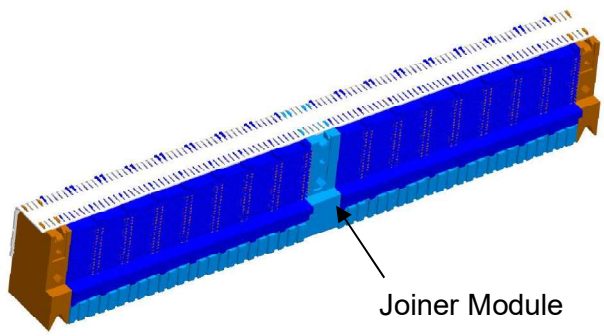

Figure 7: Daughtercard Connector Configuration with Joiner

2.6 Guidance and Keying

2.6.1 A robust guidance system is a must with today's higher density and higher pin count connectors. The XCede connector system relies on sequential funneling to ensure proper mating. The first phase is the gross alignment, which is provided by the card cage card guides as the card approaches the backplane. The XCede guide pins and receptacles provide the next alignment phase. The last and final phase is the alignment provided by the alignment ribs on the signal module front housing and the alignment slots on the backplane modules. Many design considerations must be taken into account when determining the guidance requirements such as:

- Length of connector
- Weight of daughtercard
- Gathering ability of the guide pins
- How the connector is used (i.e. Vertical or Horizontal)
- Amount of clearance in the card guides
- Multiple "separate / different" connectors of the same car edge.

2.6.2 The length of the connector will help to determine the number of guide pins required.

Table 2: Guide Pin Recommendations

DC Connector Length	2.6.2.1.1.1 Recommended Minimum Number of guide pins
150mm or less	One guide pin (minimum)
150mm – 360mm	Two guide pins at the ends of connector
360mm or greater	Contact Amphenol TCS application engineer

2.6.3 It is not recommended to use over 3 guide pins due to probability of 'binding'. In this scenario, the guide pins could work against each other due to tolerance stackup of the chassis and connector system. However, there have been rare applications where a very heavy daughter card (over 30 pounds) has had three guide pins used in the application. Please consult your Amphenol TCS Application Engineer if your application has unique requirements using over 3 guide pins.

2.6.4 The weight of the daughtercard assembly will also help to determine the type of guide pin / module used. There are three main guidance systems available when using the XCede system for the daughtercard.

1. The standard guide
2. The wide guide
3. The die cast wide guide

There are three main guidance systems available when using the XCede Plus system for the daughtercard.

1. The standard guide
2. The wide guide
3. The 8 pair power adapter guide

2.6.5 For the guide pin daughtercard weight recommendations and guide pin force deflection, please refer to Table 3 and Figure 8. In addition there is also an ESD (electro-static discharge) guide module for XCede 2, 3, 4 and 5 pair connectors and XCede Plus 4, 5, and 6 pair connectors.

Table 3: XCede and XCede Plus Guide Pin Daughtercard Weight Capacity Recommendations

Weight of Daughter card Assembly	2.6.5.1.1.1 Guidance System Recommendations
5 lbs or less	Use Standard plastic mounted guide pin and standard receptacle. Minimum One guide pin.
5 lbs – 10 lbs	Use two Standard plastic mounted guides pins and standard receptacle Or One free standing board mounted guide pin with standard guide receptacle.
10 lbs – 15 lbs	Use Two free standing board mounted guide pins with standard guide receptacle.
15 lbs or greater	Use wide guide board mounted pin.

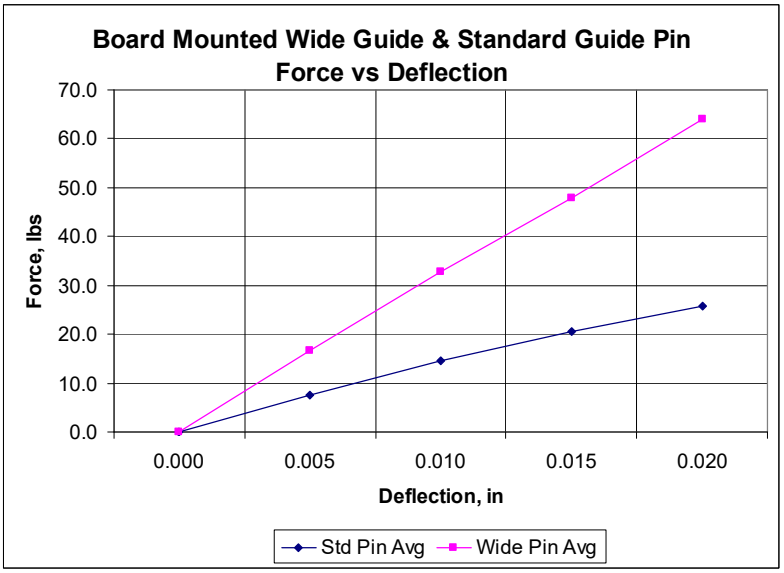

Figure 8: Guide Pin Force Vs Deflection Plot

2.6.6 The XCede and XCede Plus guidance system is capable of gathering up to 2mm radial for the standard guide pin and 3 mm radial for the wide guide pin, see Figure 9.

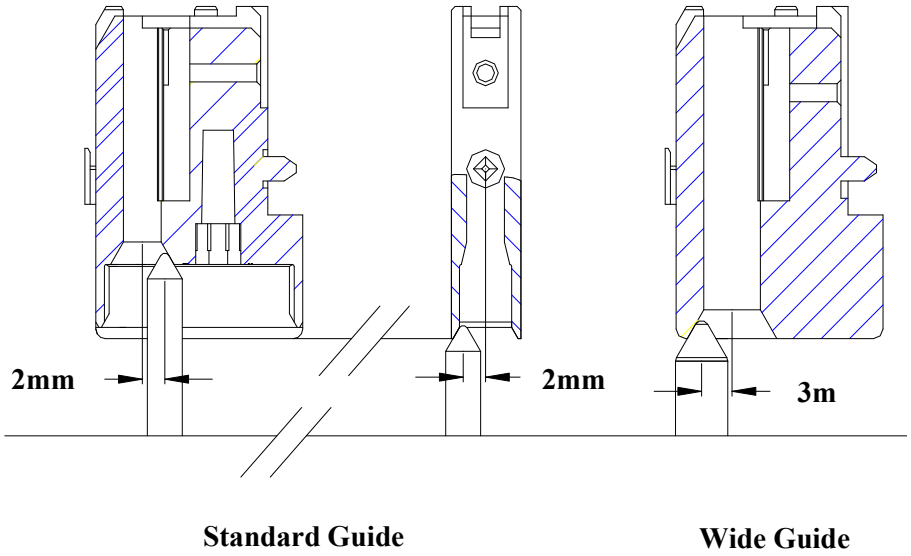

Figure 9: Standard and Wide Guide Gathering Ability

2.7 XCede Plus 8 Pair Mating Consideration

Due to the forces and the height of the connector from the board surface, XCede Plus 8 Pair can mate at an angle causing the AB pair (compliant pin side) to be fully mated while the RS pair (stiffener side) is demated. The amount the RS pair is demated depends on the board dimensions; length, width, thickness and elasticity as well as the number of wafers. For every two wafers (one A and one B) the maximum mating force can be 5.62 lb (2549.19 g). The center of this force is 0.704 in (17.88 mm) above the board surface creating a moment of 3.96 in-lb (45624 g-mm). This means an 8 pair 6 position (6 wafers, 3 A and 3 B) connector has a maximum moment of 11.88 in-lb. The board to be sufficiently supported to overcome these forces. It is recommended to add an external stiffening bracket to the board or connector that is appropriate for the system in question, please contact your Amphenol TCS Field Applications Engineer (FAE) for suggestions.

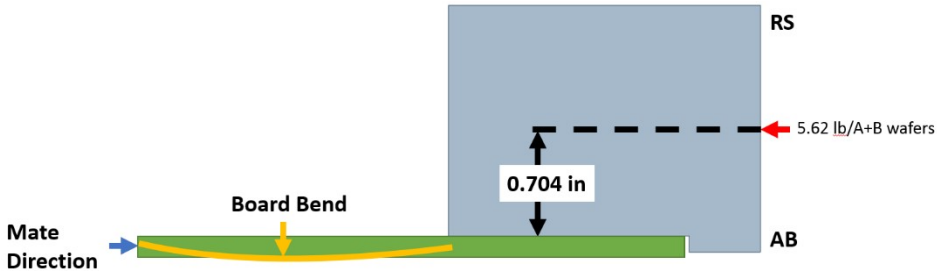

Figure 10: XCede Plus 8 Pair Moment Diagram

3 Design Guidelines for Backplane Connectors

3.1 Scope: This section describes the preferred backplane connector design

3.1.1 Backplane connector availability

Table 4: XCede Backplane Availability

Product	4 Position	6 Position	8 Position	14 Position	24 Position
2 Pr Standard	X	X	X	X	X
3 Pr Standard	X	X	X	X	X
4 Pr Standard	X	X	X	X	X
5 Pr Standard	X	X	X	X	X
6 Pr Standard	X	X	X	X	X

Table 5: XCede Plus Backplane Availability

Product	4 Position	6 Position	8 Position
4 Pr Extra Ground	X	X	X
5 Pr Extra Ground	N/A	N/A	N/A
6 Pr Extra Ground	X	X	X
8 Pr Extra Ground	X	X	X

Note: XCede Plus without extra ground applications use standard XCede backplanes, refer to Table 4 for availably.

3.1.2 All backplane modules are available in left and right guide/polarizing, and open ends.

3.1.3 Left and right guide/polarizing modules have integrated plastic mounted standard guide pins available, see Figure 11.

Figure 11:XCede (left) and XCede Plus (right) 6 Pair Polarizing Module with Integrated Plastic Mounted Guide Pin

3.1.4 The integrated plastic mounted guide pins can be used with or without board mounted screws.

3.2 Backplane connector configurations

3.2.1 The backplane modules can be configured in various combinations and are end stackable, see Figure 12.

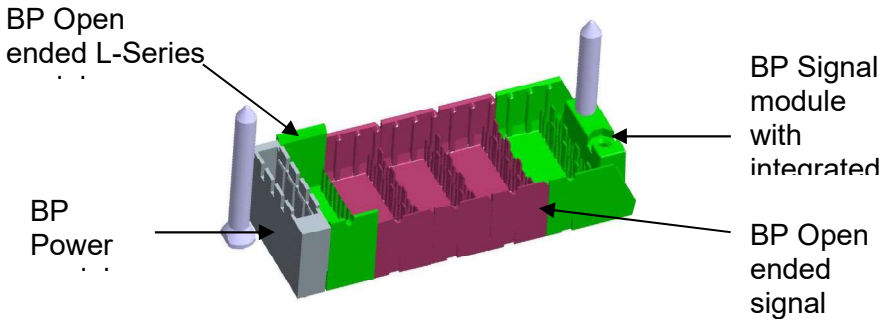

Figure 12: Typical Standard XCede Backplane Configuration

3.3 Backplane signal blade lengths

3.3.1 There are 2 different signal blade lengths available for the XCede and XCede Plus backplane connectors. Each different blade length provides a specific mechanical wipe length achieving 2mm or 3mm of wipe. Refer to the *Connector Mating Sequence Chart* which is available in section 7.1.

3.3.2 The minimum mechanical wipe is defined as a fully bottomed connector and is based on the connector tolerance loop analysis.

3.3.3 The backplane signal blades can be configured with multiple blade lengths within the same backplane module. The customer determines at which location the different blade lengths are to be stitched into the backplane module.

3.4 Backplane shield blade length

3.4.1 The backplane shield is only available in one length and has a minimum mechanical wipe of *4.0 mm.* The XCede and XCede Plus connectors are designed to have the shield contact mate prior to all of the signal contacts. Refer to the sequencing chart in section 7.1.

4 Design Guidelines for Mezzanine Connectors [Applies to XCede applications only]

4.1 Scope: This section describes the preferred mezzanine connector design

4.2 Mezzanine stack height available

4.2.1 XCede 4 pair Mezzanine (Stacker) connector system has 15mm, 22mm, 30mm, 40mm, 42mm, and 44mm stack heights available, Figure 13 shows the 4 pair 4 column 40mm stack height connector.

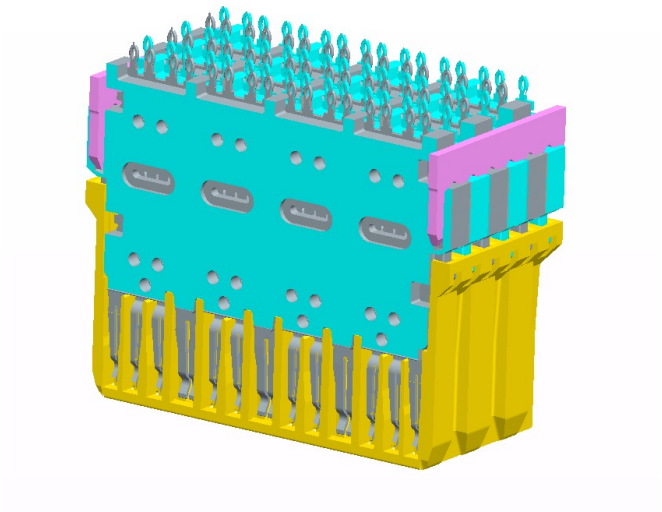

Figure 13: XCede 4 Pair 4 Column 22mm Mezzanine Connector

4.3 Stiffener

4.3.1 The mezzanine connectors are configured to fit on a mechanical 'organizer' or 'stiffener'. The signal modules and guide modules are placed onto the 'organizers' in the specific configuration required by the customer. This is usually determined by the design of their backplane slot. This organizer keeps the daughtercard components on the 1.85 mm pitch.

4.3.2 The 15mm stack height mezzanine does require a stiffener but for all other stack heights the stiffener is recommended.

4.4 Mezzanine connector configuration

4.4.1 Mezzanine connector configurations are determined by the customers' system application. Amphenol TCS recommends that for the optimal connector configuration design the connectors be grouped in increments of 4 or 6 wafers or one signal module. This matches 4 or 6 column groupings of the backplane modules. Guide modules (available only for 30 mm to 44 mm) are typically placed on the ends of the connector to protect the mezzanine connector from handling damage. See Figure 14 for the typical connector configuration.

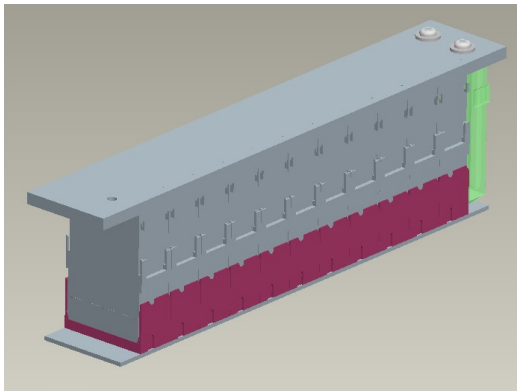

Figure 14: Typical Stacker Configuration

4.4.2 XCede mezzanine connectors can be in parallel slot configurations (preferred) and rotated 90 degrees see Figure 15.

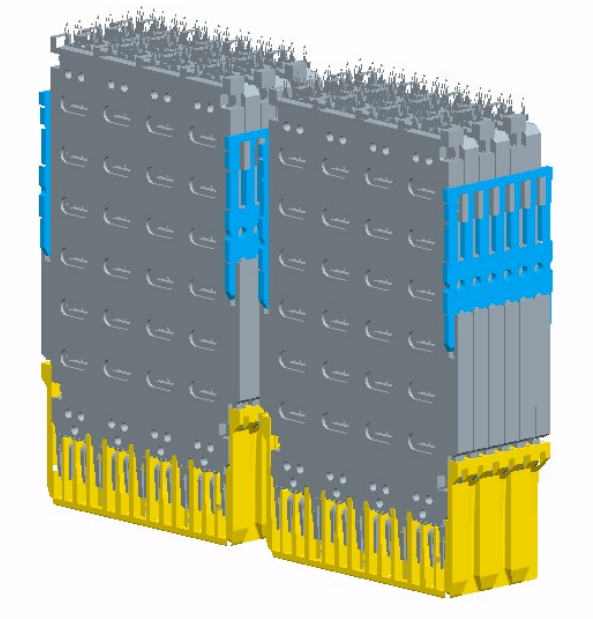

Figure 15: XCede Stacker turned 90 degrees

4.4.3 For the maximum number of modules in a connector configuration see section 2.3

4.5 Mezzanine power recommendations

4.5.1 The signal contacts are rated for 1 amp per contact see section 6.0 for the temperature rise curves. Therefore for a 4 pair connector the total current capacity is 8 amps per wafer.

4.5.2 The shield contacts are rated for 1 amp per contact see section 6.0 for the temperature rise curves. The shield contacts cannot be used for power because they are all common together with the conductive plastic and can come in contact with an adjacent wafer. Figure 16 shows this situation.

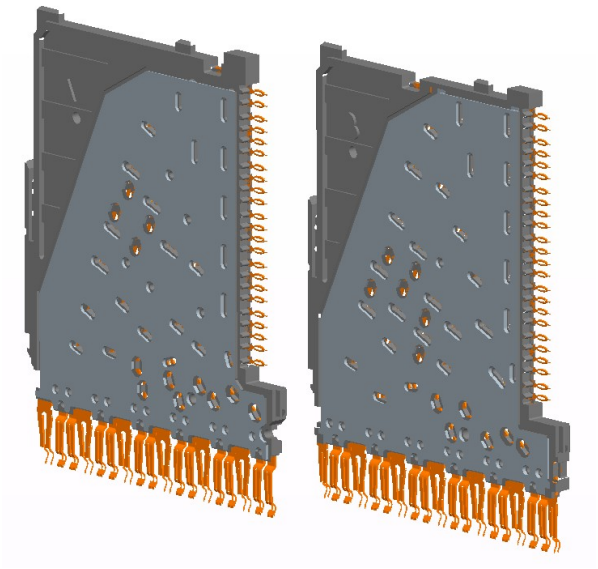

Figure 16: 6 Pair Wafers (a left, b right) with Conductive Plastic

4.5.3 Mezzanine connector latching and mechanical hold down recommendations

4.5.4 ATCS recommends a mechanical latching system to mate and unmate the connector system. The latching system will help properly mate and unmate the connector system.

4.5.5 ATCS recommends a mechanical hold down system to prevent the connector from unmating during service.

5 Design Guidelines for Co-planar (RAM) Connectors [Applies to XCede applications only]

5.1 Scope: This section describes the preferred RAM connector design

5.2 Stiffeners

5.2.1 The RAM connectors are configured to fit on a mechanical 'stiffener'. The signal modules, guide modules, power modules and other components are placed onto the 'organizers' in the specific configuration required by the customer. This

is usually determined by the design of their backplane slot. This organizer keeps the daughtercard components on the 1.85 mm pitch.

5.2.2 The daughter card configuration may also be determined by the XCede RAM Connector (Right Angle Male) for coplanar applications to which it will mate.

5.2.3 The stiffener can help to straighten the board edge but does not necessarily preclude the need for additional board stiffening.

5.3 RAM Connector Configurations

5.3.1 RAM connector configurations are determined by the customers' system application. Amphenol TCS recommends that for the optimal connector configuration design the connectors be grouped in increments of 6 wafers or one signal module (8 wafer modules are available for the 4 pair connector). This matches 6 column groupings of the backplane modules. Guide modules and power modules are typically placed on the ends of the connector to protect the RAM connector from handling damage. See Figure 17 for the typical connector configuration.

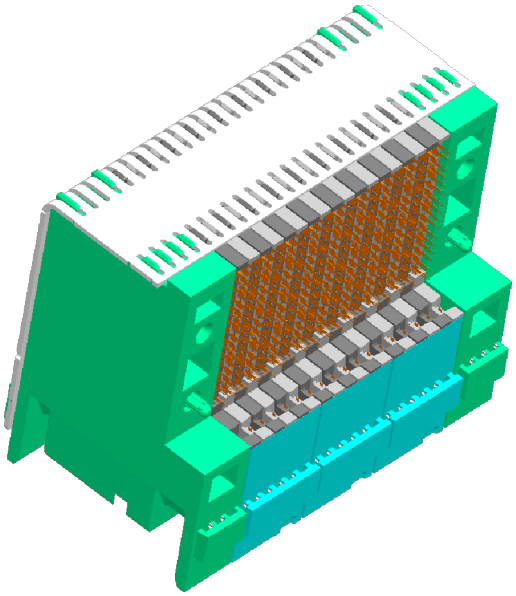

Figure 17: Typical RAM Connector Configuration

5.4 RAM connector lengths

5.4.1 The minimum length of a RAM connector is determined by the minimum required number of signal modules and other components. The minimum number of signal modules is 3 for a standard configuration, for other configurations requiring less than 3 signal modules contact Amphenol TCS Application Engineer. The maximum daughtercard length is dependant on the number of signal modules. Refer to Table 6 for maximum lengths.

Table 5: Maximum RAM Connector Length

Product Family	Maximum RAM Length, mm (# of modules)
2 Pair	304.8 (8)
4 Pair	304.8 (8)

5.4.2 The minimum number of power modules on a stiffener is 3, when used as a stand alone without other components.

5.5 RAM joiner modules

5.5.1 A Joiner module is a component that links two stiffeners together mechanically. The Joiner Module is pushed onto the daughter card connectors after they have been applied to the board.

5.5.2 If a connector needs to be longer than 304.8 mm (approx. 12"), then the connector must be divided into segments of 304.8 mm or less and connected using a Joiner Module. The longest individual stiffener length will be 304.8mm long with an affective usable length of 303.5 mm. Please consult your Amphenol TCS Application Engineer for connectors over 508 mm (20"). Figure 18 shows a connector configuration with a joiner module.

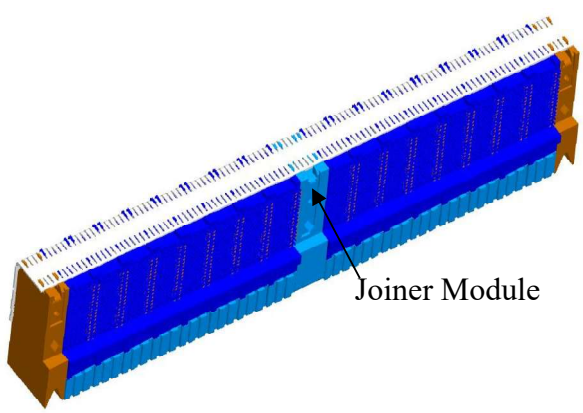

Figure 18: Connector with Joiner Module

6 Power

6.1 Current Ratings

6.1.1 Signal and shield contacts – 1 amp/contact
6.1.2 Power connector – 6 amps/contact
6.1.3 Current rating and temperature rise curves

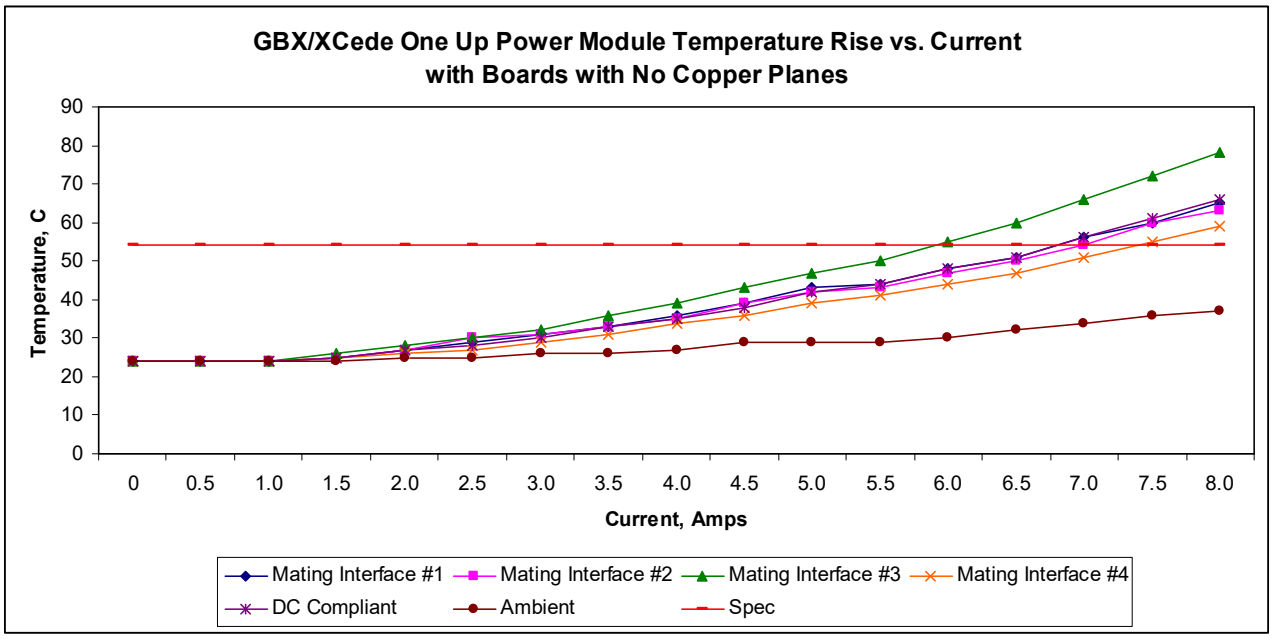

Figure 19: XCede Power Temperature Rise Plot

7 Connector Mating Sequence

7.1 XCede Nominal Sequencing Chart

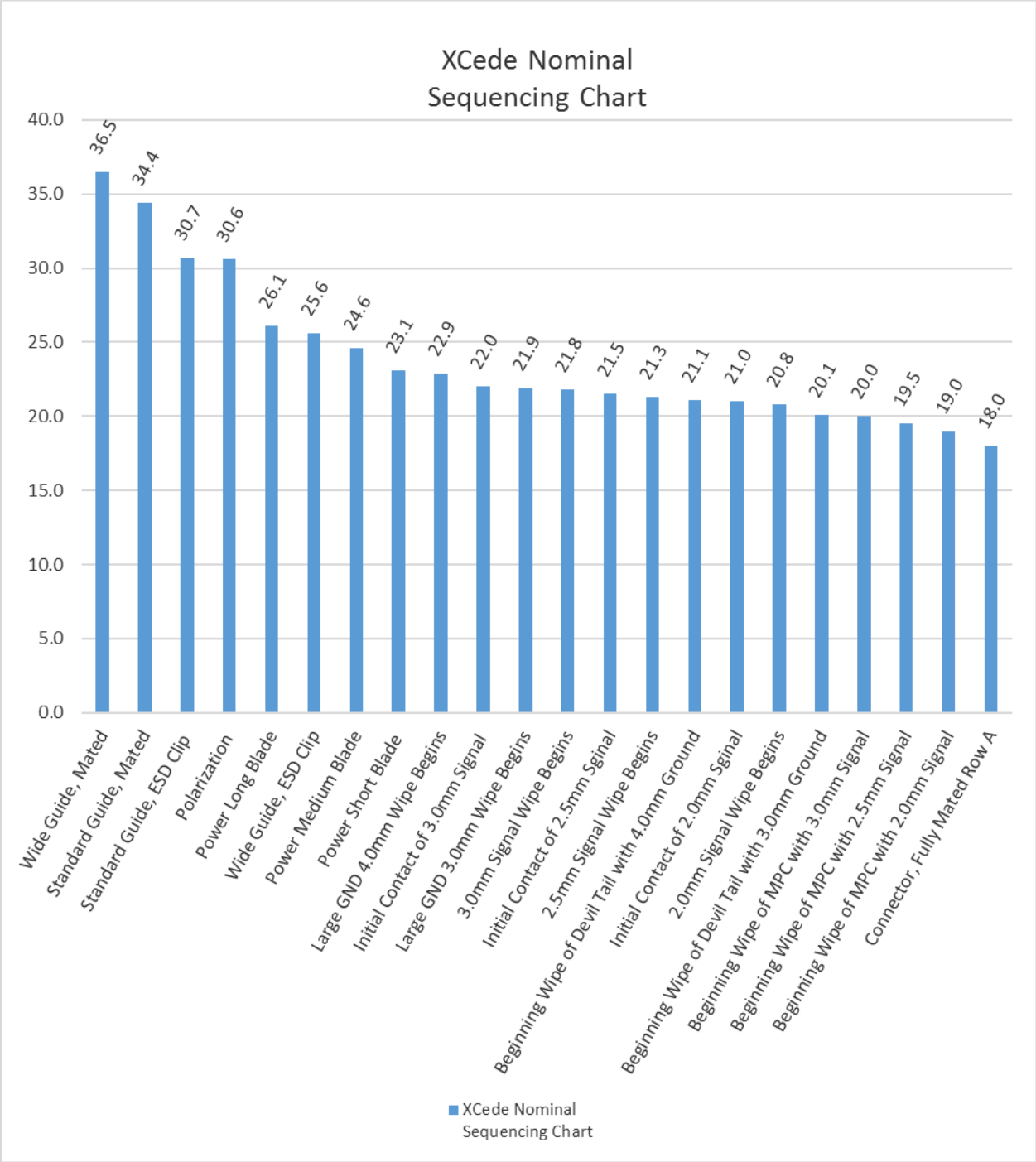

Figure 20: XCede Nominal Sequencing

7.2 XCede Plus Nominal Sequencing Chart

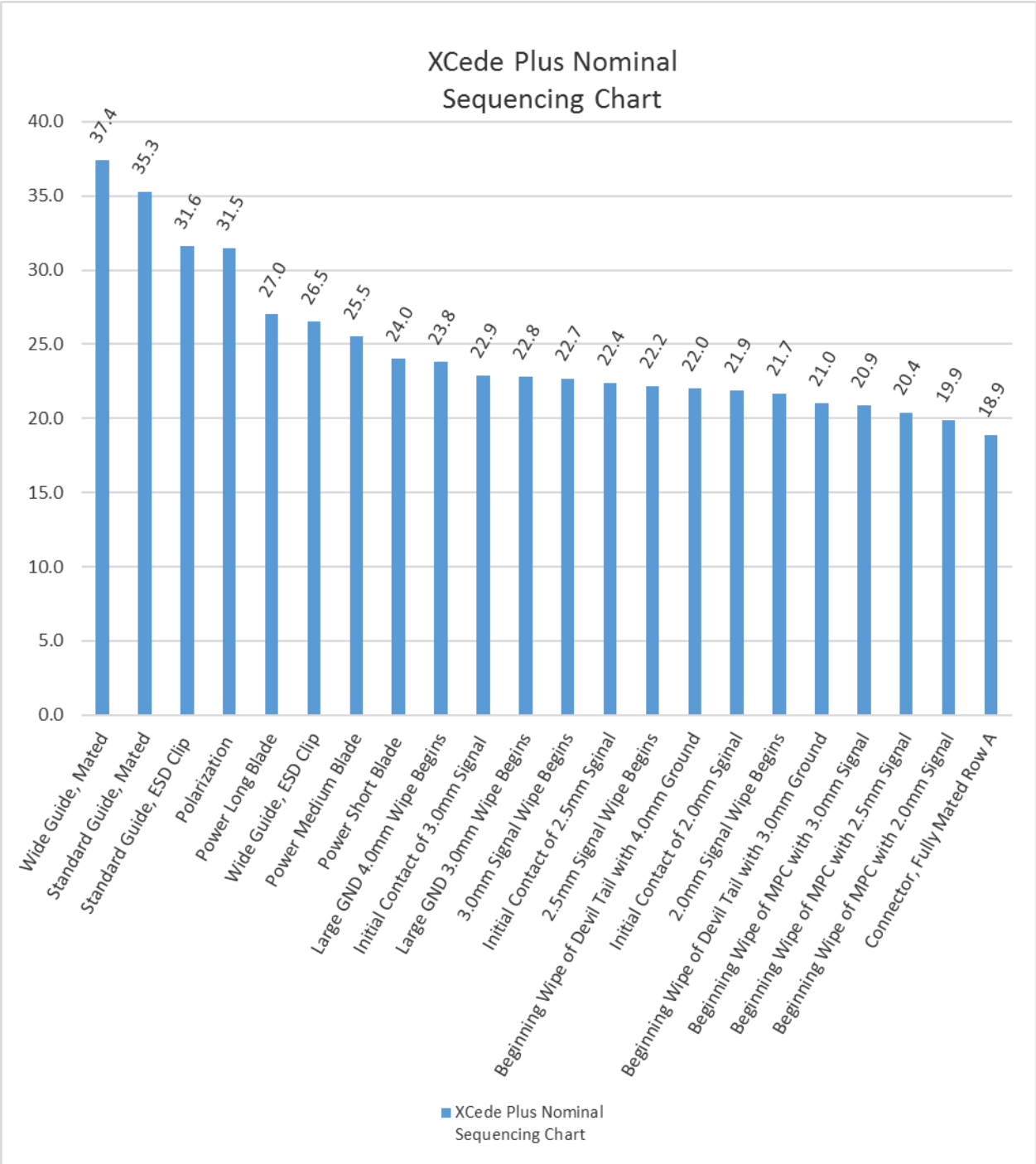

Figure 21: XCede Plus Nominal Sequencing

7.3 XCede Plus Direct Attach Nominal Sequencing Chart

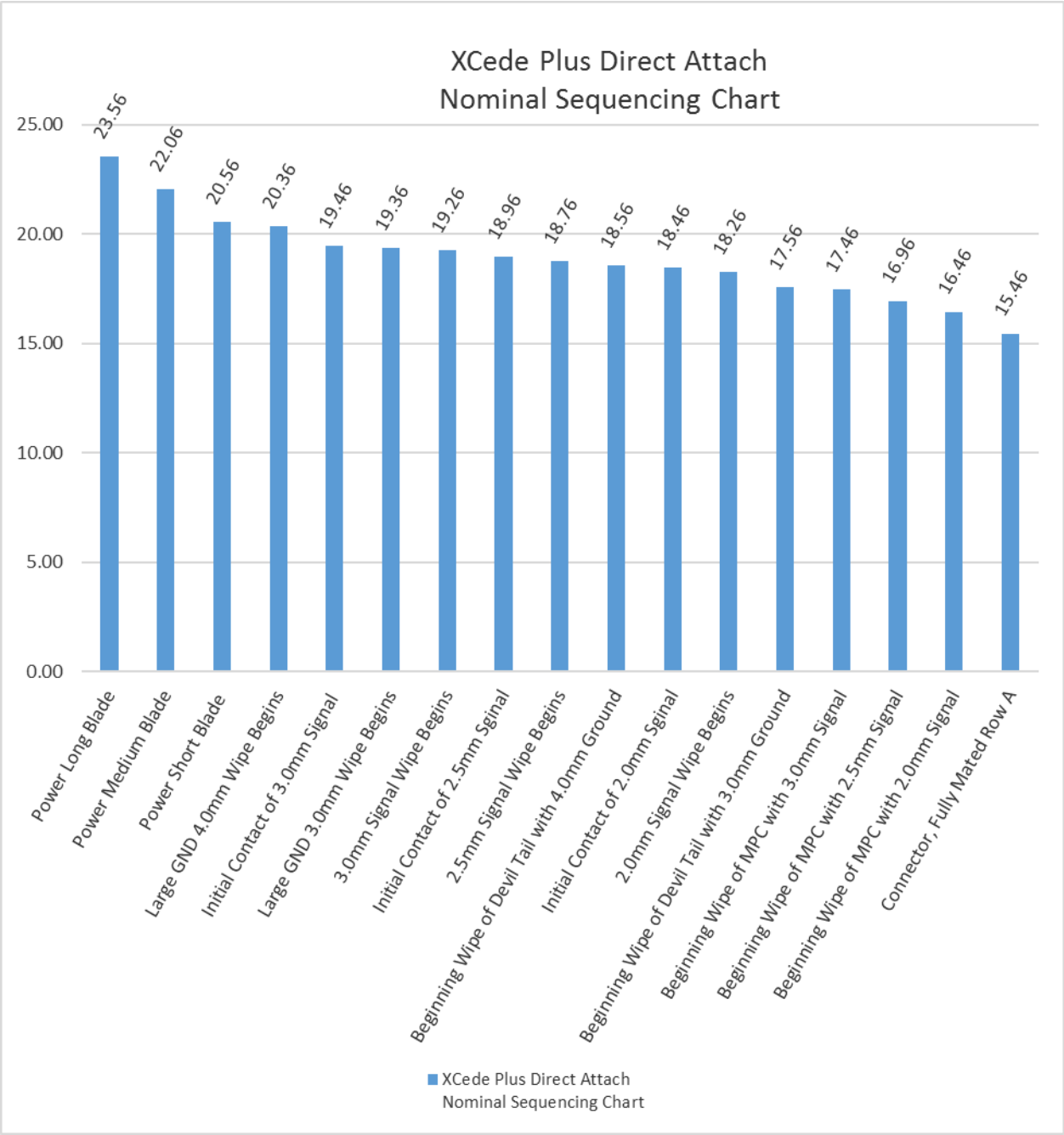

Figure 20: XCede Plus Direct Attach Nominal Sequencing

Note: XCede Standard Guide and Wide Guide Pin are similar in length.

8 Printed Circuit Board (PCB) Consideration-

Refer to TB-2149 *XCede and XCede Plus Routing Guidelines*

9 Connector Density and Slot Pitch

Table 6: Connector Density and Slot Pitch

	Connector Density	Slot Pitch
2 Pair	27 Pairs per inch	1.85mm
3 Pair	41 Pairs per inch	1.85mm
4 Pair	55 Pairs per inch	1.85mm
5 Pair	69 Pairs per inch	1.85mm
6 Pair	82 Pairs per inch	1.85mm

Table 7: Connector Density and Slot Pitch

	Connector Density	Slot Pitch
4 Pair	55 Pairs per inch	1.85mm
5 Pair	68 Pairs per inch	1.85mm
6 Pair	82 Pairs per inch	1.85mm
8 Pair	110 Pairs per inch	1.85mm

10 Mated Mechanical Lengths

Refer to TB-2150 General Product Specification for XCede and XCede Plus Backplane, Daughtercard and Mezzanine Interconnect System.

11 Mid-Plane Applications

Refer to TB-2149 XCede and XCede Plus Routing Guidelines

12 Connector Pressing

12.1 Daughtercard Pressing

Refer to TB-2198 XCede Daughtercard Connector Press-Fit Installation Process
Refer to TB-2298 XCede Plus Daughtercard Connector Press-Fit Installation Process

12.2 Backplane Pressing

Refer to TB-2197 XCede and XCede Plus Backplane Connector Press-Fit Installation

13 XCede Customer Use Drawing Number List

13.1 XCede 2 Pair Customer Use Drawings

-C960-201Y-500	XCede 2 Pair, Die Cast Guide Module, Daughtercard
-C942-2000-000	XCede 2 Pair, Stand Alone Guide Pin, Dia 3.68mm Backplane
-C950-210A-500	XCede 2 Pair, L-Series, Daughtercard
-C951-200C-500	XCede 2 Pair, 6 POS, Backplane

-C951-200E-500	XCede 2 Pair, 8 POS, Backplane
-C951-201A-500	XCede 2 Pair, L-Series, Backplane
-C956-2000-500	XCede 2 Pair, Power Assembly, Daughtercard
-C958-2900-500	XCede 2 Pair, Power Assembly, Backplane
-C958-2901-500	XCede 2 Pair, Power Assembly, Low Profile, Backplane
-C950-221A-500	XCede 2 Pair, 8 POS, Daughtercard
-C950-201A-500	XCede 2 Pair, 6 POS, Daughtercard
-C951-200J-500	XCede 2 Pair, 4 POS, Backplane
-C942-2010-000	XCede 2 Pair, Mounted Guide Pin, 3.68mm, Optional Backplane Hole
-C960-200Z-500	XCede 2 Pair, Guide Module, Daughtercard
-C950-271A-500	XCede 2 Pair, 4 POS, Daughtercard
-C958-2901-500	XCede 2 Pair, Power Assembly, Low Profile, 1mm Height, Backplane

13.2 XCede 3 Pair Customer Use Drawings

-C951-300J-500	XCede 3 Pair, 4 POS, Backplane
-C951-300C-500	XCede 3 Pair, 6 POS, Backplane
-C951-300E-500	XCede 3 Pair, 8 POS, Backplane
-C951-301A-500	XCede 3 Pair, L-Series, Backplane
-C950-371A-500	XCede 3 Pair, 4 POS, Daughtercard
-C950-301A-500	XCede 3 Pair, 6 POS, Daughtercard
-C950-321A-500	XCede 3 Pair, 8 POS, Daughtercard
-C942-4000-000	XCede 3 Pair, Standalone Guide Pin, 3.68mm, Backplane
-C942-4010-000	XCede 3 Pair, Mounted Guide Pin, 3.68mm, Optional Hole for Backplane
-C960-300Y-500	XCede 3 Pair, Guide Module, Daughtercard
-C960-310Y-500	XCede 3 Pair, Wide Guide Module, Daughtercard
-C958-3901-500	XCede 3 Pair, Power Assembly, Low Profile, Backplane
-C956-3000-500	XCede 3 Pair, Power Assembly, Daughtercard
-C958-3900-500	XCede 3 Pair, Power Assembly, Backplane

13.3 XCede 4 Pair Customer Use Drawings

--C942-4000-000	XCede and XCede Plus 4 Pair, Standalone Guide Pin, Backplane
-C942-4010-00	XCede and XCede Plus 4 Pair Mounted Guide Pin, Optional for Backplane
-C950-471A-500	XCede 4 Pair, 4 POS, Daughtercard
-C950-401A-500	XCede 4 Pair, 6 POS, Daughtercard
-C950-421A-500	XCede 4 Pair, 8 POS, Daughtercard
-C950-450A-500	XCede 4 Pair, 4 POS, RAM
-C950-430A-500	XCede 4 Pair, 6 POS, RAM
-C950-440A-500	XCede 4 Pair, 8 POS, RAM
-C950-410A-500	XCede 4 Pair, L-Series, Daughtercard
-C951-400J-500	XCede 4 Pair, 4 POS, Backplane
-C951-400C-500	XCede 4 Pair, 6 POS, Backplane
-C951-400E-500	XCede 4 Pair, 8 POS, Backplane
-C951-400Q-500	XCede 4 Pair, 14 POS, Backplane
-C951-400N-500	XCede 4 Pair, 24 POS, Backplane
-C951-401A-500	XCede 4 Pair, L-Series, Backplane
-C956-4000-500	XCede and XCede Plus 4 Pair, Power Assembly, Daughtercard
-C958-4901-500	XCede and XCede Plus 4 Pair, Power Assembly, Low Profile <, 1mm height, Backplane
-C958-4900-500	XCede and XCede Plus 4 Pair, Power Assembly, Standard profile height, Backplane
-C960-410Y-500	XCede 4 Pair, Wide Guide Module, Daughtercard
-C960-400Y-500	XCede 4 Pair, Guide Module, Daughtercard
-C963-4000-500	XCede 4 Pair, Stacking Guide Module
-C966-4N0J-500	XCede 4 Pair, 4 POS, Polarizing Module, Backplane
-C966-400C-500	XCede 4 Pair, 6 POS, Polarizing Module, Backplane
-C966-4N0E-500	XCede 4 Pair, 8 POS, Polarizing Module, Backplane

13.4 XCede 5 Pair Customer Use Drawings

-C942-4000-000	XCede and XCede Plus 5 Pair, Standalone Guide Pin, 3.68mm, Backplane
-C942-4010-00	XCede and XCede Plus 5 Pair, Mounted Guide Pin, 3.68mm,

	Optional hole for Backplane
-C950-579A-500	XCede 5 Pair, 4 Pos, Daughtercard
-C950-501A-500	XCede 5 Pair, 6 Pos, Daughtercard
-C950-521A-500	XCede 5 Pair, 8 Pos, Daughtercard
-C951-500J-500	XCede 5 Pair, 4 Pos, Backplane
-C951-500C-500	XCede 5 Pair, 6 Pos, Backplane
-C951-500E-500	XCede 5 Pair, 8 Pos, Backplane
-C951-500Q-500	XCede 5 Pair, 14 Pos, Backplane
-C956-5000-500	XCede and XCede Plus 5 Pair, Power, Daughtercard
-C958-5900-500	XCede and XCede plus 5 Pair, Power Assembly, Backplane
-C958-5901-500	XCede and XCede Plus 5 Pair, Power Assembly, Low Profile, < 1mm height, Backplane
-C960-510Y-500	XCede 5 Pair, Wide Guide, Daughtercard
-C960-500Y-500	XCede 5 Pair, Guide Module, Daughtercard

13.5 XCede 6 Pair Customer Use Drawings

-C942-4000-000	XCede and XCede Plus 6 Pair, Standalone Guide Pin, 3.68mm, Backplane
-C942-4010-000	XCede and XCede Plus 6 Pair, Mounted Guide Pin, 3.68mm, Backplane
-C950-671A-500	XCede 6 Pair, 4 Pos, Daughtercard
-C950-600A-500	XCede 6 Pair, 6 Pos, Daughtercard
-C950-620A-500	XCede 6 Pair, 8 Pos, Daughtercard
-C951-600J-500	XCede 6 Pair, 4 Pos, Backplane
-C951-600C-500	XCede 6 Pair, 6 Pos, Backplane
-C951-600E-500	XCede 6 Pair, 8 Pos, Backplane
-C956-6000-500	XCede and XCede Plus 6 Pair, Power, Daughtercard
-C958-6900-500	XCede and XCede Plus 6 Pair, Power Assembly, Backplane
-C958-6910-500	XCede and XCede Plus 6 Pair, 2 Up Power Assembly, Backplane
-C958-6901-500	XCede and XCede Plus 6 Pair, Power Assembly, Low Profile, < 1mm height, Backplane
-C960-600Y-500	XCede 6 Pair, Guide Module, Daughtercard
-C960-610Y-500	XCede 6 Pair, Wide Guide, Daughtercard

14 XCede Plus Customer Use Drawing Number List

14.1 XCede 4 Pair Customer Use Drawings

-C942-4000-000	XCede and XCede Plus 4 Pair, Standalone Guide Pin, Backplane
-C942-4010-00	XCede and XCede Plus 4 Pair Mounted Guide Pin, Optional for Backplane
-C982-47B6-500	XCede Plus 4 Pair, 4 POS, Daughtercard without extra ground [Not Tooled]
-C982-40B6-500	XCede Plus 4 Pair, 6 POS, Daughtercard without extra ground
-C982-42B6-500	XCede Plus Pair, 8 POS, Daughtercard without extra ground
-C982-47A6-500	XCede Plus 4 Pair, 4 POS, Daughtercard with Extra ground [Not Tooled]
-C982-40A6-500	XCede Plus 4 Pair, 6 POS, Daughtercard with Extra ground
-C982-42A6-500	XCede Plus Pair, 8 POS, Daughtercard with Extra ground
-C982-400J-500	XCede 4 Pair, 4 POS, Backplane [Used for XCede Plus without extra ground modules]
-C951-400C-500	XCede 4 Pair, 6 POS, Backplane [Used for XCede Plus without extra ground modules]
-C951-400E-500	XCede 4 Pair, 8 POS, Backplane [Used for XCede Plus without extra ground modules]
-C940-400A-500	XCede Plus 4 Pair, 4 POS, Backplane [Not Tooled]
-C940-400B-500	XCede Plus 4 Pair, 6 POs, Backplane
-C940-400C-500	XCede Plus 4 pair, 8 POS, Backplane
-C956-4000-500	XCede and XCede Plus 4 Pair, Power Assembly, Daughtercard
-C958-4900-500	XCede and XCede Plus 4 Pair, Power Assembly, Standard profile height, Backplane
-C958-4901-500	XCede and XCede Plus 4 Pair, Power Assembly, Low Profile, Backplane
-C987-410Y-500	XCede Plus 4 Pair, Wide Guide Module, Daughtercard
-C987-400Y-500	XCede Plus 4 Pair, Guide Module, Daughtercard

14.2 XCede Plus 5 Pair Customer Use Drawings

-C942-4000-000	XCede and XCede Plus 5 Pair, Standalone Guide Pin, 3.68mm, Backplane
-C942-4010-00	XCede and XCede Plus 5 Pair, Mounted Guide Pin, 3.68mm, Optional hole for Backplane
-C982-57A6-500	XCede 5 Pair, 4 Pos, Daughtercard without extra ground
-C982-50A6-500	XCede 5 Pair, 6 Pos, Daughtercard without extra ground
-C982-52A6-500	XCede 5 Pair, 8 Pos, Daughtercard without extra ground
-C982-57B6-500	XCede 5 Pair, 4 Pos, Daughtercard with extra ground [Not Tooled]
-C982-50B6-500	XCede 5 Pair, 6 Pos, Daughtercard with extra ground [Not Tooled]
-C982-52B6-500	XCede 5 Pair, 8 Pos, Daughtercard with extra ground [Not Tooled]
-C951-500J-500	XCede 5 Pair, 4 Pos, Backplane [Used for XCede Plus without extra ground modules]
-C951-500C-500	XCede 5 Pair, 6 Pos, Backplane [Used for XCede Plus without extra ground modules]
-C951-500E-500	XCede 5 Pair, 8 Pos, Backplane [Used for XCede plus without Extra ground modules]
-C956-5000-500	XCede and XCede Plus 5 Pair, Power, Daughtercard
-C958-5900-500	XCede and XCede plus 5 Pair, Power Assembly, Backplane
-C958-5901-500	XCede and XCede Plus 5 Pair, Power Assembly, Low Profile, < 1mm height, Backplane
-C987-510Y-500	XCede Plus 5 Pair, Wide Guide, Daughtercard
-C987-500Y-500	XCede Plus 5 Pair, Guide Module, Daughtercard

14.3 XCede Plus 6 Pair Customer Use Drawings

-C942-4000-000	XCede and XCede Plus 6 Pair, Standalone Guide Pin, 3.68mm, Backplane
-C942-4010-000	XCede and XCede Plus 6 Pair, Mounted Guide Pin, 3.68mm, Backplane
-C982-67A6-500	XCede 6 Pair, 4 Pos, Daughtercard without extra ground

-C982-60A6-500	XCede 6 Pair, 6 Pos, Daughtercard without extra ground
-C982-62A6-500	XCede 6 Pair, 8 Pos, Daughtercard without extra ground
-C982-67B6-500	XCede 6 Pair, 4 Pos, Daughtercard with extra ground
-C982-60B6-500	XCede 6 Pair, 6 Pos, Daughtercard with extra ground
-C982-62B6-500	XCede 6 Pair, 8 Pos, Daughtercard with extra ground
-C951-600J-500	XCede 6 Pair, 4 Pos, Backplane [used for XCede Plus without extra ground modules]
-C951-600C-500	XCede 6 Pair, 6 Pos, Backplane [used for XCede Plus without extra ground modules]
-C951-600E-500	XCede 6 Pair, 8 Pos, Backplane [used for XCede Plus without extra ground modules]
-C940-600A-500	XCede Plus 6 Pair, 4 POS, Backplane
-C940-600B-500	XCede Plus 6 pair, 6 POS, Backplane
-C940-600C-500	XCede Plus 6 pair, 8 POS, Backplane
-C958-6900-500	XCede and XCede Plus 6 Pair, Power Assembly, Backplane
-C958-6910-500	XCede and XCede Plus 6 Pair, 2 Up Power Assembly, Backplane
-C958-6901-500	XCede and XCede Plus 6 Pair, Power Assembly, Low Profile, < 1mm height, Backplane
-C987-600Y-500	XCede Plus 6 Pair, Guide Module, Daughtercard
-C987-610Y-500	XCede Plus 6 Pair, Wide Guide, Daughtercard

14.4 XCede Plus 8 Pair Customer use Drawings

-C942-4000-000	XCede and XCede Plus 8 Pair, Standalone Guide Pin, 3.68mm, Backplane
-C982-87B6-500	XCede 8 Pair, 4 Pos, Daughtercard with extra ground [Not Tooled]
-C982-80B6-500	XCede 8 Pair, 6 Pos, Daughtercard with extra ground
-C982-82B6-500	XCede 8 Pair, 8 Pos, Daughtercard with extra ground
-C940-800A-500	XCede Plus 8 Pair, 4 POS, Backplane [Not Tooled]
-C940-800B-500	XCede Plus 8 pair, 6 POS, Backplane
-C940-800C-500	XCede Plus 8 pair, 8 POS, Backplane
-C956-4000-500	XCede and XCede Plus 4 Pair, Power Assembly, Daughtercard [Used with the XCede Plus 8 pair Power adapter]

-C958-4900-500	XCede and XCede Plus 4 Pair, Power Assembly, Standard profile height, Backplane
-C958-4901-500	XCede and XCede Plus 4 Pair, Power Assembly, Low Profile, Backplane
-C956-4048-000	XCede Plus 8 Pair Power adapter, Daughtercard
-C987-800Y-500	XCede Plus 8 Pair, guide Module, Daughtercard

15 X2 Customer Use Drawing List

15.1 X2 4 Pair Customer Use Drawings

-C979-4000-500	X2 Part Numbers of Wafers with Embedded Caps