Triton Daughter Card Dimensions and Mounting Hole Locations

V0.3, 10/7/05

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1. Introduction

This document provides mechanical dimensions for standard Triton daughter cards. Information in this document can also be used to locate daughter card standoff positions on the Triton carrier assembly base plate.

Most dimensions are referenced to pin A1 within the daughter card connectors.

1.1 Mounting Hole Dimensions

All daughter card mounting standoffs on Triton will be threaded for 4-40 screws. Mounting holes on Triton daughter cards should be compatible with 4-40 hardware. An example daughter card mounting hole would use a grounded, plated-through hole with 3.2mm finished diameter and a 7.0mm annular ring.

Note that the Triton motherboard standoffs will be threaded for 6-32 hardware.

1.2 Standoff Height and Backside Component Height

Daughter card standoffs will be 0.250” long. Daughter card maximum back-side component height should be limited to 0.200” to avoid contacting the grounded, steel base plate used in the Triton carrier assembly.

Note that the motherboard standoffs will be 0.250” long. Base plate nominal thickness is 0.047”.

1.3 Assembly Cross Section

Figure 1.1 illustrates a cross-section of the Triton board, base plate, and daughter card assembly. The daughter card connector system consists of MEG-Array plugs and receptacles. The plug is mounted on the back side of the Triton motherboard, while the matching receptacle is mounted on the back side of the daughter card.

The standoffs are mounted to either side of the base plate using counter-sunk machine screws. The daughter card plugs extend through apertures cut into the base plate material. Daughter card and motherboard standoffs must maintain at least 0.3” center-to-center separation from each other in the base plate.

![Figure 1.1 Triton Motherboard and Daughter Card Assembly Cross Section](image)

1.4 References

1.5 Revision History

Please use the following format for version updates:

10/7/2005 11:05 AM
V0.1, GR, 9/23/05, first draft.

V0.3, NP, 10/7/05, Fixed Type 3A mounting hole location. Added optional mounting hole to 3A and 3B and 3BLONG.
2. Daughter Card Positions

Figure 2.1 illustrates the daughter card positions on the Triton base plate with all locations loaded with the largest, non-mutually exclusive cards defined for each position. This view is from the daughter card side of the Triton carrier assembly, with top views of the daughter cards. The daughter cards are located in positions defined by the daughter card connector locations on the motherboard. The daughter card connectors, which are mounted on the back side of both the motherboard and the daughter cards, are shown for reference. The back panel of the carrier assembly is also shown for reference.

Note that this view corresponds to a back-side view of the Triton motherboard.

The largest, non-mutually exclusive, standard daughter cards defined for each position are shown in Figure 2.1. Smaller daughter cards will also work in the single-connector positions (Types 0, 1, 2, and 4). Single-connector daughter cards are not supported in the Type 3 positions due to potential mechanical interference with the associated, second connector in the Type 3 position and adjacent daughter card standoffs and connectors.

The motherboard standoff positions, which have a defined “keep-out” region relative to the daughter card standoffs, are shown as cross-hatched circles. The keep-out region shown around the standoff positions is 0.3”, which corresponds to the use of threaded stand-offs with countersunk machine screws. The motherboard standoff locations are of interest only for daughter card standoff location – there is no implication on daughter card back-side parts due to motherboard standoff locations.

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![Figure 2.1 Triton Daughter Card Positions Using Type 3B](image-url)
Figure 2.2 is similar to Figure 2.1, but with the Type 3B Long daughter card installed. This card is mutually-exclusive with the Type 4 daughter card, which is in the configuration section of the Triton motherboard.

Figure 2.2 Triton Daughter Card Positions Using Type 3B Long
3. Short Daughter Card Dimensions (Type 0, 1, 2, and 4)

Figure 3.1 provides dimensions for the “short” standard daughter card. This card is supported in single-connector positions only, Type 0, 1, 2, and 4. Short daughter cards are not supported in Type 3 positions.

Figure 3.1 Type 0, 1, 2, 4 Short Daughter Card Dimensions
4. Medium Daughter Card Dimensions (Type 0, 1, 2, and 4)

Figure 4.1 provides dimensions for the “medium” standard daughter card. This card is supported in single-connector positions only, Type 0, 1, 2, and 4. Medium daughter cards are not supported in Type 3 positions.

Figure 4.1 Type 0, 1, 2, 4 Medium Daughter Card Dimensions
5. Long Daughter Card Dimensions (Type 0 and 1)

Figure 5.1 provides dimensions for the “long” standard daughter card. This card is supported in single-connector positions only, Types 0, and 1 only. Long daughter cards are not supported in Type 2, 3, and 4 positions. Note that the Triton back panel is illustrated. The back-panel dimension is relative to the inside surface of the panel.
Figure 5.1 Type 0, 1 Long Daughter Card Dimensions
6. Type 0A Daughter Card Dimensions

Figure 6.1 provides dimensions for the Type 0A standard daughter card. This card is supported by daughter card connector P100 only. The Type 0A card is the maximum standard size card for connector P100. Note that the Triton back panel is illustrated. The back-panel dimension is relative to the inside surface of the panel.
Figure 6.1 Type 0A Daughter Card Dimensions
7. Type 0B Daughter Card Dimensions

Figure 7.1 provides dimensions for the Type 0B standard daughter card. This card is supported by daughter card connector P103 only. The Type 0B card is the maximum standard size card for connector P103. Note that the Triton back panel is illustrated. The back-panel dimension is relative to the inside surface of the panel.

Note that two of the daughter card mounting holes are shifted from their “logical” positions due to a conflict with motherboard standoff positions.
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View: Top Side
300-Pin Receptacle on Back
P/N: 84553-101

Type 0B

Note: Daughter card mounting hole shifted due to motherboard standoff location

Grid: 0.050"

Figure 7.1 Type 0B Daughter Card Dimensions
8. Type 3A Daughter Card Dimensions

Figure 8.1 provides dimensions for the Type 3A standard daughter card. This card is supported by daughter card connector pair P104/P105 only. The Type 3A card is the standard size card for connector pair P104/P105.

Note that portions of the Type 3A card are dimensioned relative to pin A1 of either P104 or P105. Note that the relative positions of pin A1 in each connector do not correspond to a 50 mil grid.

Note that this daughter card covers an aperture in the Triton base plate, which is used to provide back-side access to an array FPGA JTAG connector (there is another, parallel connector mounted on the top side of the board). This connector is approximately flush with the surface of the base plate that faces the daughter card, so there are no keep-out requirements in this area for the daughter card back side.

The mounting hole in the center of the Type 3A and 3B daughter cards does not have a standoff installed. This is to allow larger cards more flexibility. If the center standoff is required, it can be added.
Figure 8.1 Type 3A Daughter Card Dimensions
9. Type 3B Daughter Card Dimensions

Figure 9.1 provides dimensions for the Type 3B standard daughter card. This card is supported by daughter card connector pair P108/P109 only. The Type 3B card is the standard size card for connector pair P108/P109, which allows use of the Type 4 daughter card in connector P210.

Note that portions of the Type 3B card are dimensioned relative to pin A1 of either P108 or P109. Note that the relative positions of pin A1 in each connector do not correspond to a 50 mil grid.

The mounting hole in the center of the Type 3A and 3B daughter cards does not have a standoff installed. This is to allow larger cards more flexibility. If the center standoff is required, it can be added.
Figure 9.1 Type 3B Daughter Card Dimensions

View: Top Side
400-Pin Receptacle on Back
P/N: 74390-101

View: Top Side
300-Pin Receptacle on Back
P/N: 84553-101

Type 3B
Grid: 0.050"
NOT TO SCALE

Note: This mounting hole does not have a standoff. One can be added if requested.
10. Type 3B Long Daughter Card Dimensions

Figure 10.1 provides dimensions for the Type 3B Long standard daughter card. This card is supported by daughter card connector pair P108/P109 only. The Type 3B Long card is the largest standard size card for connector pair P108/P109. This daughter card is mutually exclusive with the Type 4 daughter card in connector P210.

Note that portions of the Type 3B Long card are dimensioned relative to pin A1 of either P108 or P109. Note that the relative positions of pin A1 in each connector do not correspond to a 50 mil grid.

Note that since this daughter card overlaps a portion of the Type 4 daughter card position, two of the mounting holes are defined by the Type 4 card (specifically, relative to pin A1 of daughter card connector P210). The location of the Type 4 mounting holes are referenced to pin A1 of connector P108 in this diagram for reference. These dimensions can be used for Type 3B Long daughter card development – they should not be used for locating the Type 4 daughter card standoffs in the base plate.

Note that a keep-out region is defined for the back-side of the Type 3B Long daughter card where it overlaps the Type 4 daughter card connector (P210). This connector may not be incorporated on this card due to the orthogonal orientation with P108/P109, which would damage the connectors during insertion. Maximum component height for daughter card back-side components in this keep-out region is 0.100”.

The mounting hole in the center of the Type 3A and 3B daughter cards does not have a standoff installed. This is to allow larger cards more flexibility. If the center standoff is required, it can be added.
Figure 10.1 Type 3B Long Daughter Card Dimensions