SOM-LV Mechanical Interface Specification
White Paper 340

Logic // Embedded Product Solutions
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Revision History

REV	EDITOR	DESCRIPTION	APPROVAL	DATE
A	JCA	Release	ER	02/12/07
B	JCA	Specified J1 and J2 connectors on drawings; Introduced Type I and Type II distinctions, added Section 2; Added connector height information	JCA	08/23/07
C	JCA	- Throughout: Added SOM-LV Type III information ; - Added Section 1.1 to explain scope of document - Section 2.1: Added note about Max Height; Updated information based upon new mechanical drawings; - Section 3.1: Updated Important Note; - Added Section 3.2 for recommended spacers; - Updated all mechanical drawings: The mounting hole dimension tolerance has been corrected (was ±0.01 mm, should be ±0.08 mm)	ER & JCA	09/19/08
D	JCA	- Created section for "Mounting Specifications"; moved "Support Spacers" into this section - Updated footprint dimensioning scheme in drawings	NJK & JMC	03/20/09

1 Introduction

This White Paper serves as an overview for designing a custom baseboard that can accommodate the Logic SOM-LV module form factor.

1.1 Scope of Document

This document should only be considered a broad overview of the SOM-LV form factor specification. Other interface connectors or features may exist that are unique to a particular SOM-LV but fall outside the scope of the form factor specification. When designing a SOM-LV into your product, please reference all the hardware documentation (Hardware Specification, Schematic, Layout, BOM, etc.) for that specific SOM-LV.

2 SOM-LV Types

The SOM-LV form factor is comprised of three subsets based upon the physical size of the module: Type I, Type II, and Type III (Type I being the largest and Type III being the smallest). All three types of the SOM-LV form factor utilize the same expansion connectors and pin-out scheme.

2.1 Comparison of Type I, Type II, and Type III

	SOM-LV Type I	SOM-LV Type II	SOM-LV Type III
Width	59.0 mm	51.1 mm	31.2 mm
Length	76.2 mm	76.2 mm	76.2 mm
Max Height*	8.5 mm	8.5 mm	8.5 mm
Connectors	BTH-120-01-L-D-A	BTH-120-01-L-D-A	BTH-120-01-L-D-A

*Max Height represents a height measurement that the SOM-LV form factor specification attempts to stay below. Individual SOMs may differ as components can change PCB location during board spins.

3 Mechanical Specifications

3.1 Interface Connectors

The SOM-LV module connects to a Printed Circuit Board (PCB) through two 240-pin board-to-board (BTB) connectors (J1 and J2). The connector height is 4.064 mm and the height when mated with the baseboard connector is 5.001 mm; both measurements are according to the manufacturer's device specifications.

Important Notes:

1. Some components on the SOM-LV may take advantage of the full mating height and their locations are subject to change as the board is revised. Within the layout area of the SOM-LV, the maximum component height on the baseboard is 1.0 mm; ideally, no components should be placed on the baseboard in the area beneath the SOM-LV. However, if the baseboard design requires components to be placed beneath the module, we recommend you contact Logic for assistance.

Ref Designator	Manufacturer	SOM-LV Connector PN	Mating Connector PN
J1, J2	Samtec	BTH-120-01-L-D-A	BSH-120-01-L-D-A

3.2   Mounting Specifications

3.2.1   Support Spacers

Attach spacers between the SOM-LV and application board to provide additional support when securing the SOM-LV to the baseboard.

Manufacturer	PN	Description	Sales Info.
Bivar	9908-5MM	Nylon screw (#4) spacers, 5 mm	http://www.bivar.com/sales_network.asp

3.2.2   Screw Size

Securing the SOM-LV to the baseboard requires screws of size 3 or smaller.

3.2.3   Washers

Only use flat washers with diameters of 3.8 mm or smaller when securing the SOM-LV to the baseboard. Any other washer type or size may result in cut traces or component and PCB damage leaving the SOM-LV inoperable.

IMPORTANT NOTE: Do not apply an excessive amount of torque when securing the SOM-LV to the baseboard. Using more torque than necessary may damage the SOM-LV.
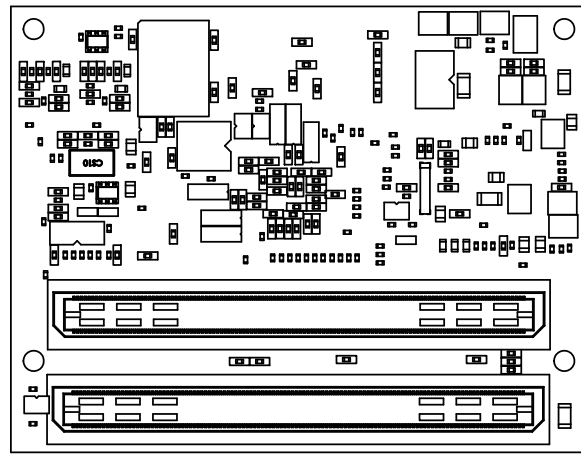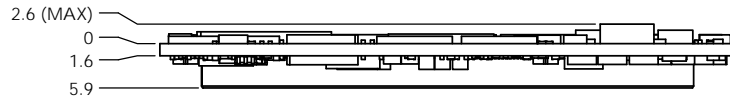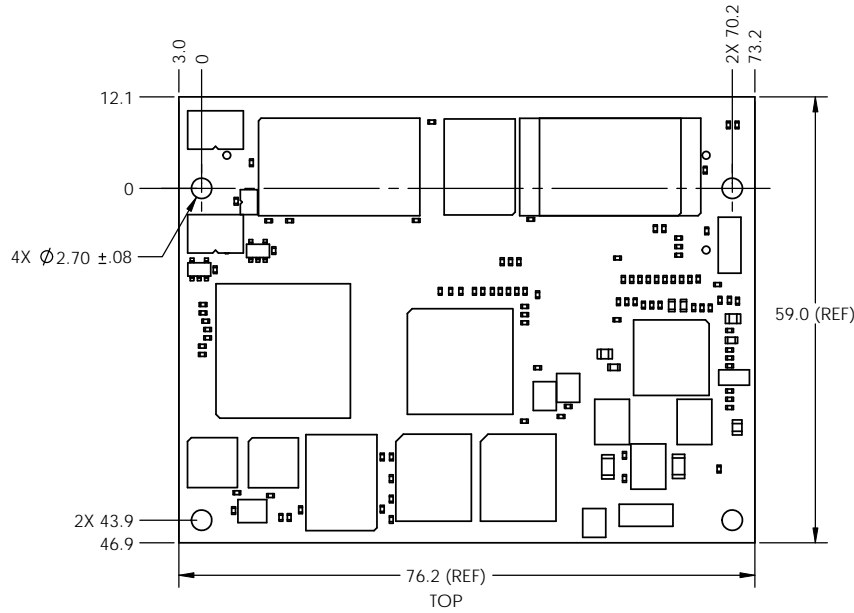
3.3   Mechanical Drawings

The SOM-LV form factor exists in three different sizes: Type I, Type II, and Type III. All three Types use the same expansion connectors and have the same length and maximum height. Provided the baseboard design takes into consideration locations for the mounting holes on all three Types, there should be no mechanical repercussions to substituting one Type for another.

The following pages provide drawings for the different SOM-LV Types as represented by current Logic products.

- The SOM-LV Type I form factor is represented by the standard i.MX31 SOM-LV product.

- The SOM-LV Type II form factor is represented by the standard i.MX27 SOM-LV product.

- The SOM-LV Type III form factor is represented by the standard OMAP35x SOM-LV product.

- The baseboard SOM-LV form factor footprint drawing demonstrates how a design can accommodate all three Types of the SOM-LV form factor. The important points of distinction are the different mounting hole locations and the overall layout space that results from the varying sizes of the SOM-LV Types.
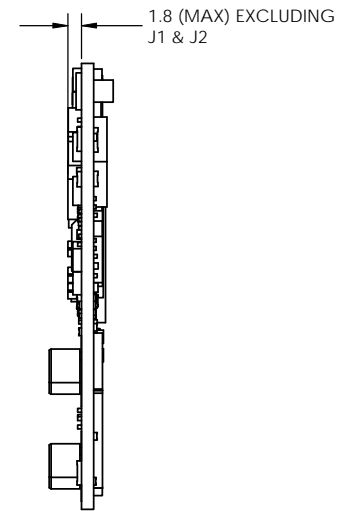
3.3.1 SOM-LV Type I Mechanical Drawings

TOP

BOTTOM

NOTES:

1. WITHIN LAYOUT AREA OF SOM-LV MAXIMUM COMPONENT HEIGHT ON APPLICATION BASEBOARD IS 1.0 MM

2. BASEBOARD CONNECTOR SPECIFICATION: SAMTEC BSH-120-01-L-D-A

3. DO NOT SCALE DRAWING

3.0
0
2X 70.2
73.2
12.1
0
4X Ø2.70 ±.08
59.0 (REF)
2X 43.9
46.9
76.2 (REF)

2.6 (MAX)
0
1.6
5.9

1.8 (MAX) EXCLUDING J1 & J2

THIS DRAWING PREPARED IN ACCORDANCE WITH ASME Y14.5-2000

ALL DIMENSIONS ARE IN MILLIMETERS UNLESS OTHERWISE SPECIFIED

TOLERANCES UNLESS OTHERWISE SPECIFIED
X   ± 0.5
X.X   ± 0.2
X.XX ± 0.1
X°   ± 1°

ENG MHC	DATE 07.30.08
CHECK KAG	DATE 07.30.08
MGR PMH	DATE 07.30.08
MANF -	DATE -

LOGIC
411 N. Washington Ave, Suite 400 Minneapolis, MN 55401
T: 612.672.9495 F: 612.672.9489 i: www.logicpd.com

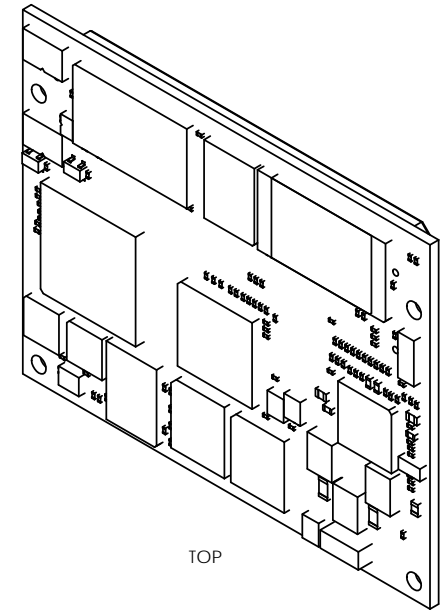SIZE: C
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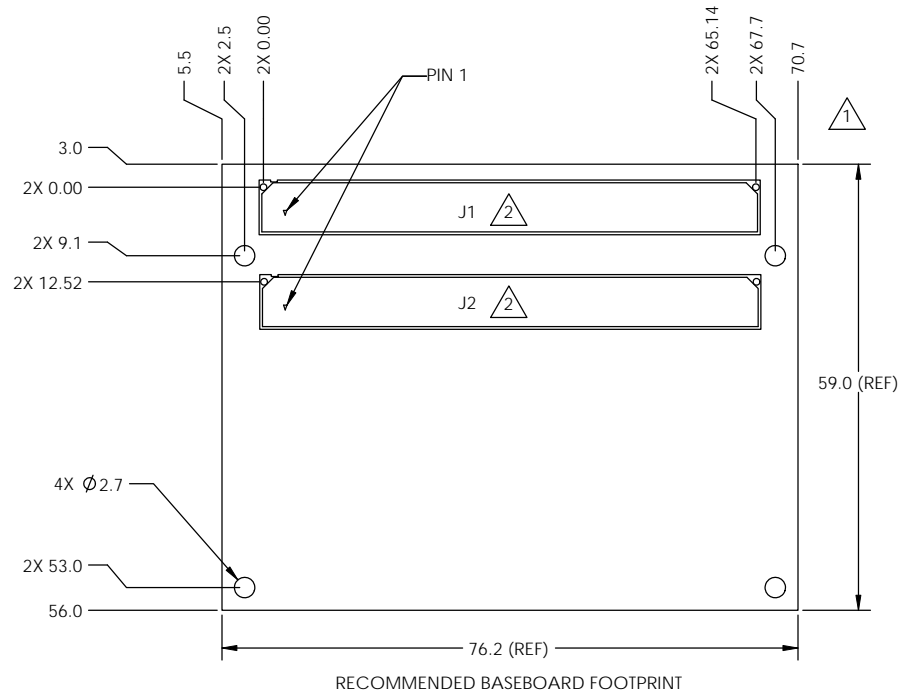DWG NO: 1010496
REV: B
SHEET: 1 OF 2
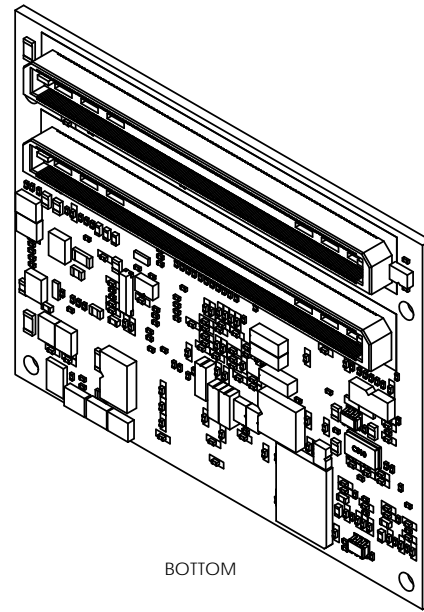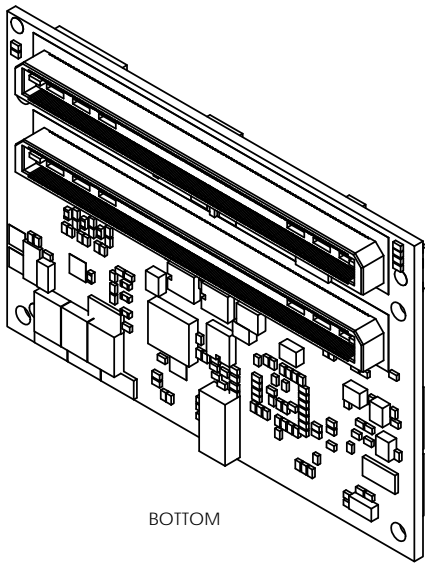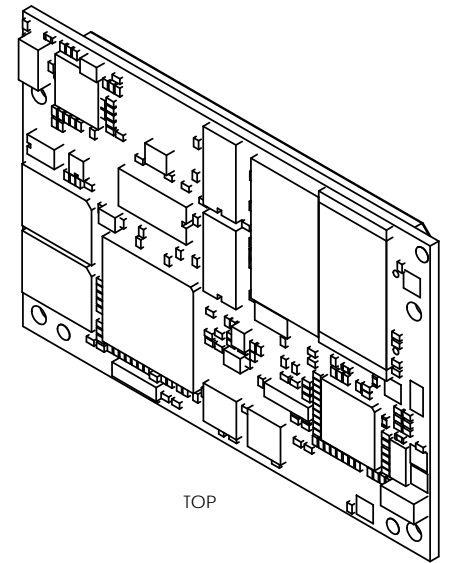
BOTTOM

TOP

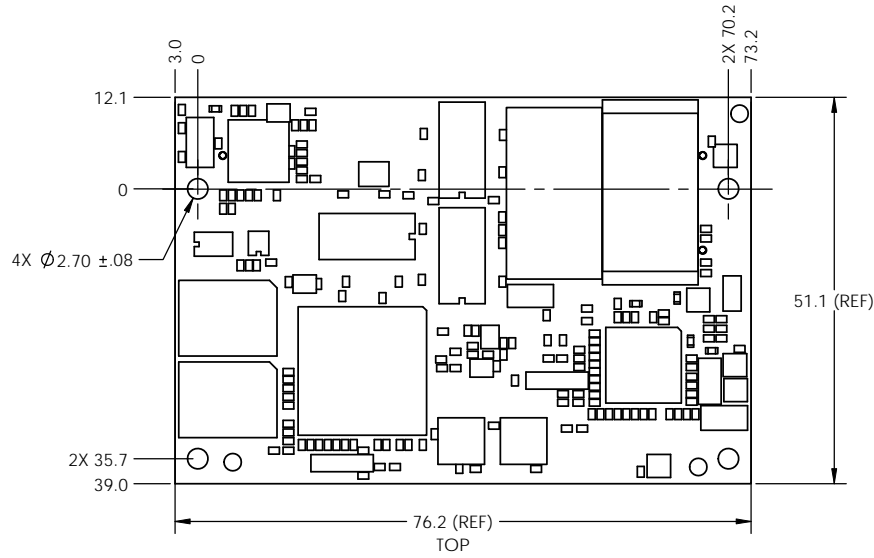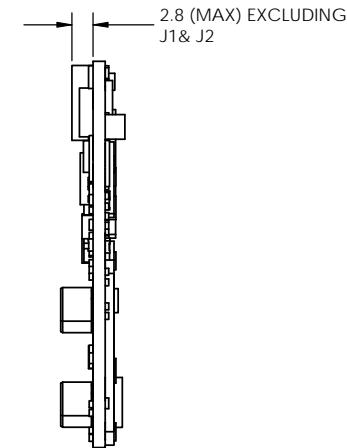ISOMETRIC VIEWS
FOR REFERENCE ONLY

5.5
2X 2.5
2X 0.00
PIN 1
2X 65.14
2X 67.7
70.7

1

3.0

2X 0.00

J1   2

2X 9.1

2X 12.52

J2   2

59.0 (REF)

4X ⌀2.7

2X 53.0

56.0

76.2 (REF)

RECOMMENDED BASEBOARD FOOTPRINT

3.3.2 SOM-LV Type II Mechanical Drawings

TOP

3.0
0
12.1
0
4X ∅2.70 ±.08
2X 35.7
39.0
76.2 (REF)
2X 70.2
73.2
51.1 (REF)

2.6 (MAX)
0
1.6
5.9

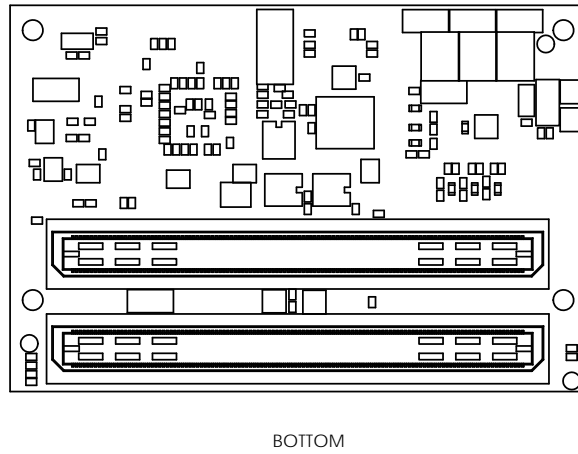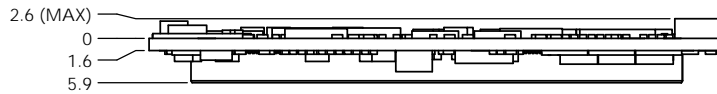2.8 (MAX) EXCLUDING J1& J2

BOTTOM

NOTES:

1. WITHIN LAYOUT AREA OF SOM-LV MAXIMUM COMPONENT HEIGHT ON APPLICATION BASEBOARD IS 1.0 MM

2. BASEBOARD CONNECTOR SPECIFICATION: SAMTEC BSH-120-01-L-D-A

3. DO NOT SCALE DRAWING

BOTTOM

TOP

ISOMETRIC VIEWS
FOR REFERENCE ONLY

PIN 1

5.5
2X 2.5
2X 0.00
2X 65.14
2X 67.7
70.7

3.0

2X 0.00

J1 ⟨2⟩

2X 9.1

2X 12.52

J2 ⟨2⟩

⟨1⟩

51.1 (REF)

4X Ø2.7

2X 44.8

48.1

76.2 (REF)

RECOMMENDED BASEBOARD FOOTPRINT

3.3.3 SOM-LV Type III Mechanical Drawings

TOP

BOTTOM

1.8 (MAX) EXCLUDING J1 AND J2

NOTES:

1. WITHIN LAYOUT AREA OF SOM-LV, MAXIMUM COMPONENT HEIGHT ON APPLICATION BASEBOARD IS 1.0 MM

2. BASEBOARD CONNECTOR SPECIFICATION: SAMTEC BSH-120-01-L-D-A

3. DO NOT SCALE DRAWING

THIS DRAWING PREPARED IN ACCORDANCE WITH ASME Y14.5-2000

ALL DIMENSIONS ARE IN MILLIMETERS UNLESS OTHERWISE SPECIFIED

TOLERANCES UNLESS OTHERWISE SPECIFIED
X   ± 0.5
X.X   ± 0.2
X.XX   ± 0.1
X°   ± 1°

ENG	DATE		SIZE	TITLE	REV
MHC	07.30.08	LOGIC	C	OMAP 3 SOM-LV	B
CHECK KAG	DATE 07.30.08				
MGR PMH	DATE 07.30.08	411 N. Washington Ave, Suite 400 Minneapolis, MN 55401	SCALE 2:1	DWG NO 1010498	SHEET 1 OF 2
MANF -	DATE -	T:612.672.9495 F:612.672.9489 I: www.logicpd.com			
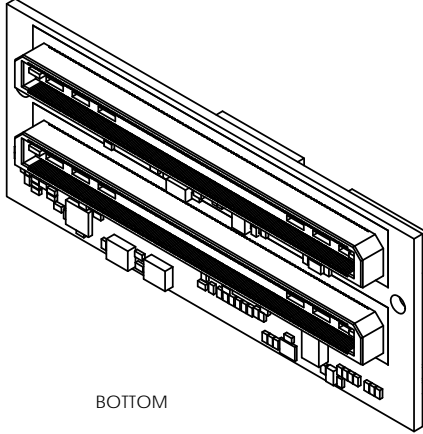
BOTTOM

TOP

ISOMETRIC VIEWS
FOR REFERENCE ONLY

5.5
2.5
2X 0.00
PIN 1
2X 65.14
67.7
70.7

3.0

2X 0.00

J1

2X 9.1

2X 12.52

J2

2X ⌀2.7

31.2 (REF)

28.2

76.2 (REF)
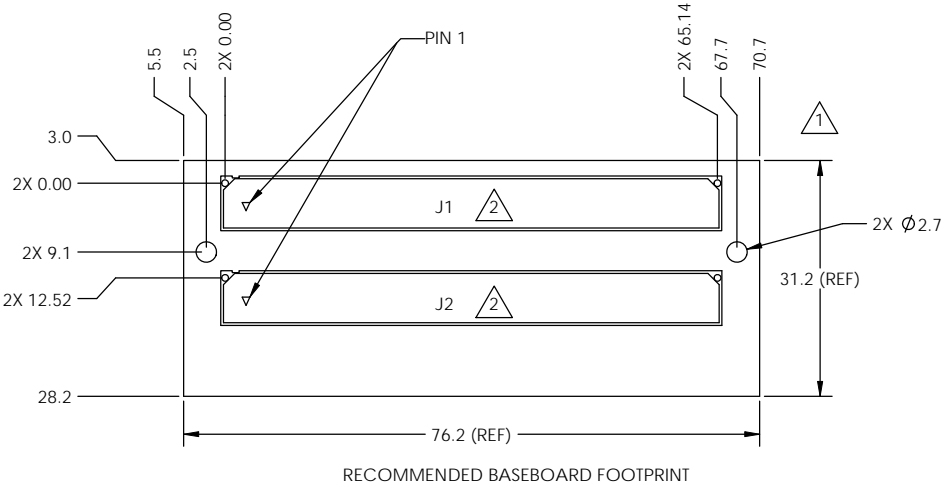
RECOMMENDED BASEBOARD FOOTPRINT

3.3.4 Recommended Baseboard PCB Layout

PIN1

J1 ⚠3

J2 ⚠3

5.5
3X 2.5
2X 0.00 (TYPE I, II, III)

2X 65.14
3X 67.7
70.7

3.0
2X 0.00 (TYPE I, II, III)

2X 9.1
2X 12.52

28.2 (TYPE III)

2X 44.8 (TYPE II)
48.1 (TYPE II)
2X 53.0 (TYPE I)
56.0 (TYPE I)

59.0 (REF)

76.2 (REF)

Ø2.70

RECOMMENDED BASEBOARD FOOTPRINT
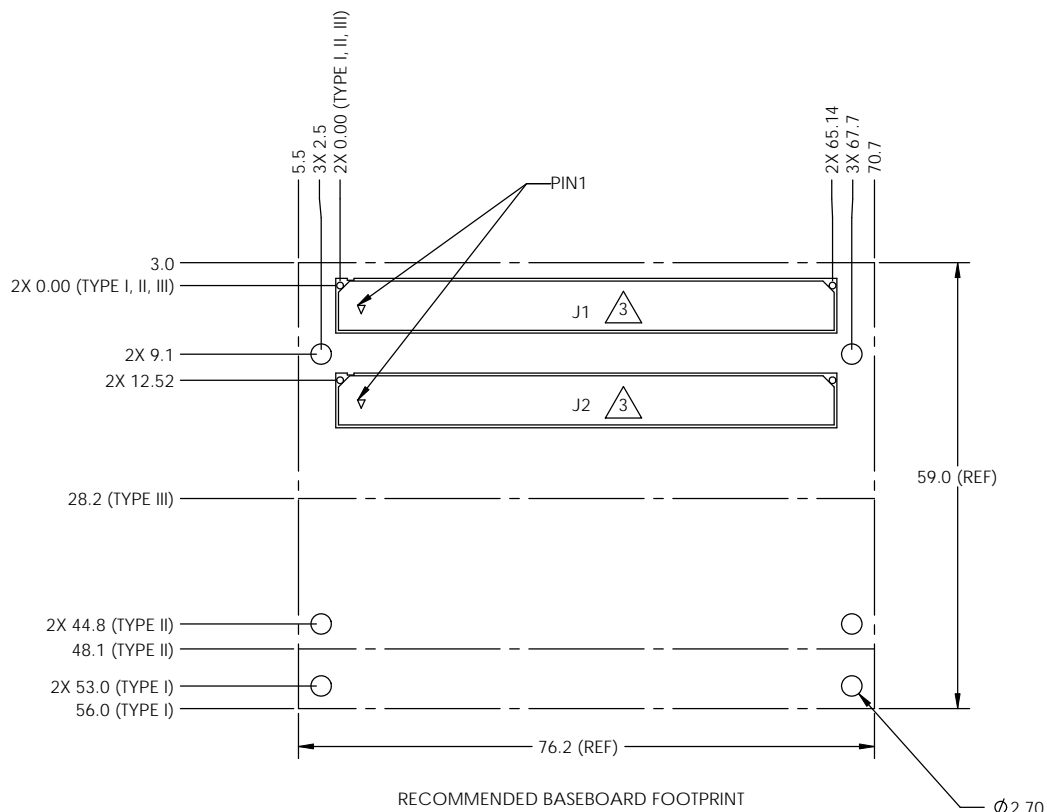
NOTES:

1. WITHIN LAYOUT AREA OF SOM-LV, MAXIMUM COMPONENT HEIGHT ON APPLICATION BASEBOARD IS 1.0 MM

2. SOM-LV TYPE III USES ONLY TWO HOLES

⚠3 BASEBOARD CONNECTOR SPECIFICATION: SAMTEC BSH-120-01-L-D-A

4. DO NOT SCALE DRAWING

THIS DRAWING PREPARED IN ACCORDANCE WITH ASME Y14.5-2000

ALL DIMENSIONS ARE IN MILLIMETERS UNLESS OTHERWISE SPECIFIED
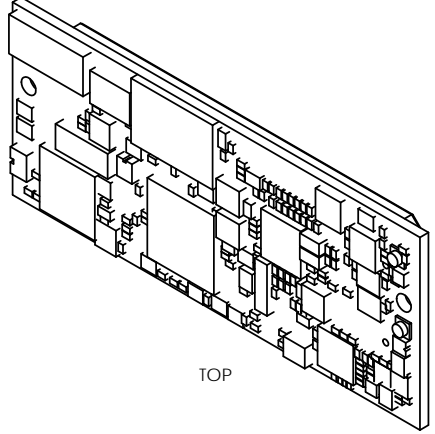
TOLERANCES UNLESS OTHERWISE SPECIFIED
X   ± 0.5
X.X   ± 0.2
X.XX   ± 0.1
X°   ± 1°

	ENG	DATE			SIZE	TITLE	REV
	KAG	08.07.08	▶ LOGIC		C	SOM-LV Form Factor Footprint	B
	CHECK	DATE					
	JPS	08.07.08					
	MGR	DATE	411 N. Washington Ave, Suite 400 Minneapolis, MN 55401		SCALE	DWG NO	SHEET
	PMH	08.07.08	T:612.672.9495 F:612.672.9489 I: www.logicpd.com		2:1	1010581	1 OF 1
	MANF	DATE					
	-	-					