



Product Change Notification / ALAN-20BLUP482

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**Date:**

07-Nov-2022

**Product Category:**

32-bit Microcontrollers

**PCN Type:**

Manufacturing Change

**Notification Subject:**

CCB 4847 Final Notice: Qualification of ATP7 as an additional assembly site for selected Atmel ATSAM51Jxx and ATSAME5xx device families available in 64L VQFN (9x9x1.0mm) package.

**Affected CPNs:**

[ALAN-20BLUP482\\_Affected\\_CPN\\_11072022.pdf](#)  
[ALAN-20BLUP482\\_Affected\\_CPN\\_11072022.csv](#)

**Notification Text:**

**PCN Status:**Final Notification

**PCN Type:**Manufacturing Change

**Microchip Parts Affected:**Please open one of the files found in the Affected CPNs section.  
Note: For your convenience Microchip includes identical files in two formats (.pdf and .xls)

**Description of Change:**Qualification of ATP7 as an additional assembly site for selected Atmel ATSAM51Jxx and ATSAME5xx device families available in 64L VQFN (9x9x1.0mm) package.

**Pre and Post Change Summary:**

	Pre Change	Post Change
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<b>Assembly location</b>	ASE Inc. (ASE)	ASE Inc. (ASE)	Amkor Technology Philippines (P3/P4), INC. (ATP7)
Bond Wire Material	CuPdAu	CuPdAu	CuPdAu
Die Attach Material	EN-4900F	EN-4900F	CRM1085A
Molding Compound Material	G631H	G631H	G631BQF
Lead-Frame	Material	C194	C194
	Paddle Size	193 X 193 mils	193 X 193 mils
	See pre and post change comparison		

**Impacts to Data Sheet:**None

**Change Impact:**None

**Reason for Change:**To improve manufacturability and on-time delivery performance by qualifying ATP7 as an additional assembly site.

**Change Implementation Status:**In Progress

**Estimated First Ship Date:**December 9, 2022 (date code: 2250)

Note: Please be advised that after the estimated first ship date customers may receive pre and post change parts.

**Time Table Summary:**

	September 2021					>	November 2022					December 2022			
Workweek	3 6	3 7	3 8	3 9	4 0		4 5	4 6	4 7	4 8	4 9	50	51	52	53
Initial PCN Issue Date				x											
Qual Report Availability							x								
Final PCN Issue Date							x								
Estimated												x			

Implementation Date																	
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**Method to Identify Change:** Traceability code

**Qualification Report:** Please open the attachments included with this PCN labeled as PCN\_#\_Qual\_Report.

**Revision History:** September 23, 2021: Issued initial notification.  
 November 7, 2022: Issued final notification. Attached the Qualification Report. Provided estimated first ship date to be on December 9, 2022.

The change described in this PCN does not alter Microchip’s current regulatory compliance regarding the material content of the applicable products.

**Attachments:**

- [PCN\\_ALAN-20BLUP482 Pre and Post Change\\_Summary.pdf](#)
- [PCN\\_ALAN-20BLUP482\\_Qualification Report.pdf](#)

Please contact your local [Microchip sales office](#) with questions or concerns regarding this notification.

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**MICROCHIP**

**QUALIFICATION REPORT  
RELIABILITY LABORATORY**

**PCN #: ALAN-20BLUP482**

**Date**

**September 14, 2022**

**Qualification of ATP7 as an additional  
assembly site for selected Atmel  
ATSAMD51Jxx and ATSAME5xx device  
families available in 64L VQFN (9x9x1.0mm)  
package.**



## MICROCHIP Package Qualification Report

**Purpose:** Qualification of ATP7 as an additional assembly site for selected Atmel ATSAM51Jxx and ATSAME5xx device families available in 64L VQFN (9x9x1.0mm) package.

**CCB:** 4847

<u>Misc.</u>	Assembly site	ATP7
	BD Number	TBD
	MP Code (MPC)	651067TMBC05
	Part Number (CPN)	ATSAMD51J20A-MU
	MSL information	MSL-3 @260C
	Assembly Shipping Media (T/R, Tube/Tray)	KS-870274
	Base Quantity Multiple (BQM)	Tray -260
	Reliability Site	MPHIL
<u>Lead-Frame</u>	Paddle size	197X197 (5X5mm)
	Material	C194FH
	DAP Surface Prep	Double Ring Plating
	Treatment	Roughened
	Process	Etched
	Lead-lock (With Locking Holes)	No
	Part Number	101419822
	Lead Plating	Matte Sn
Strip Size	250 X 70mm	
<u>Bond Wire</u>	Material	CuPdAu
<u>Die Attach</u>	Part Number	CRM1085A
	Conductive	Yes
<u>MC</u>	Part Number	G631BQF
<u>PKG</u>	PKG Type	VQFN
	Pin/Ball Count	64
	PKG width/size	9x9x1mm



# MICROCHIP

## Package Qualification Report

### Manufacturing Information

Assembly Lot No.
ATP7225100059.000
ATP7225100060.000
ATP7225200001.000

**Result**

Pass

Fail

65106 from UMC 65nm in 64L VQFN 9x9x1.0mm assembled at ATP7. pass reliability test per QCI-39000 which was conducted at MPHL rel lab. This package is qualified Moisture/Reflow Sensitivity Classification Level 3 at 260°C reflow temperature per IPC/JEDEC J-STD-020E standard.

# PACKAGE QUALIFICATION REPORT

Test Number (Reference)	Test Condition	Standard/ Method	Qty. (Acc.)	Def/SS	Result	Remarks
<b>Precondition Prior Perform Reliability Tests (At MSL Level 3)</b>	<b>Electrical Test :25°C</b> Magnum	JESD22- A113,  JIP/ IPC/JEDE C J-STD- 020E	231 per lot	Lot 1 0/231	Pass	Good Devices
				Lot 2 0/231	Pass	
				Lot 3 0/231	Pass	
	<b>Bake</b> 150°C, 24 hrs System: HERAEUS		231 per lot			
	<b>Moisture Soak</b> 192h(30°C/60%RH) System: Climats Excal 5423-HE		231 per lot			
<b>Reflow</b> 3x Convection-Reflow 265°C max System: Mancorp CR.5000F			231 per lot	Lot 1 0/231	Pass	
				Lot 2 0/231	Pass	
				Lot 3 0/231	Pass	
<b>Electrical Test :25°C</b> Magnum SV 1024			231 per lot	Lot 1 0/231	Pass	
				Lot 2 0/231	Pass	
				Lot 3 0/231	Pass	

# PACKAGE QUALIFICATION REPORT

Test Number (Reference)	Test Condition	Standard/ Method	Qty. (Acc.)	Def/SS.	Result	Remarks
<b>UNBIASED HAST</b>	<b>Stress Condition:</b> (Standard) + 130°C, 85%RH, 96 hrs. System: HIRAYAMA HASTEST PC-422R8  <b>Electrical Test:</b> 25°C System: Magnum	JESD22-A118	77 units per lot	Lot 1 0/77	Pass	Parts had been pre-conditioned at 260°C
				Lot 2 0/77	Pass	
				Lot 3 0/77	Pass	
<b>UNBIASED HAST</b>	<b>Stress Condition:</b> (Standard) + 130°C, 85%RH, 192 hrs. System: HIRAYAMA HASTEST PC-422R8  <b>Electrical Test:</b> 25°C System: Magnum	JESD22-A118	77 units per lot	Lot 1 0/77	Pass	
				Lot 2 0/77	Pass	
				Lot 3 0/77	Pass	
<b>UNBIASED HAST</b>	<b>Internal Package Analysis</b>		5 units per lot	Lot 1, 0/5	Pass	
				Lot 2, 0/5	Pass	
				Lot 3, 0/5	Pass	



# PACKAGE QUALIFICATION REPORT

Test Number (Reference)	Test Condition	Standard/ Method	Qty. (Acc.)	Def/SS.	Result	Remarks
<b>HAST</b>	<b>Stress Condition:</b> (Standard) 130°C, 85%RH, 96 hrs. VOLTS=3.6V System: HIRAYAMA HASTEST PC-422R8  <b>Electrical Test:</b> 25°C System: Magnum	JESD22-A110	77 units per lot	Lot 1 0/77  Lot 2 0/77  Lot 3 0/77	Pass  Pass  Pass	
	<b>Stress Condition:</b> (Standard) 130°C, 85%RH, 192 hrs. VOLTS=3.6V System: HIRAYAMA HASTEST PC-422R8  <b>Electrical Test:</b> 25°C System: Magnum	JESD22-A110	77 units per lot	Lot 1 0/77  Lot 2 0/77  Lot 3 0/77	Pass  Pass  Pass	
	<b>Internal Package Analysis</b>		5 units per lot	Lot 1, 0/5  Lot 2, 0/5  Lot 3, 0/5	Pass  Pass  Pass	

# PACKAGE QUALIFICATION REPORT

Test Number (Reference)	Test Condition	Standard/ Method	Qty. (Acc.)	Def/SS	Result	Remarks
<b>Temp Cycle</b>	<b>Stress Condition:</b> (Standard) - 65°C/150°C, 500 Cycles System : Votsch VTS <sup>2</sup> 7012  <b>Electrical Test:</b> 25°C System: Magnum	JESD22-A104	77 units per lot	Lot 1 0/77  Lot 2 0/77  Lot 3 0/77	Pass  Pass  Pass	Parts had been pre-conditioned at 260°C
	<b>Stress Condition:</b> (Standard) - 65°C/150°C, 1000 Cycles System : Votsch VTS <sup>2</sup> 7012  <b>Electrical Test:</b> 25°C System: Magnum	JESD22-A104	77 units per lot	Lot 1 0/77  Lot 2 0/77  Lot 3 0/77	Pass  Pass  Pass	
	<b>Internal Package Analysis</b>		5 units per lot	Lot 1, 0/5  Lot 2, 0/5  Lot 3, 0/5	Pass  Pass  Pass	
	<b>Bond Strength:</b>  <b>System:</b> Dage Wire Bond Pull (> 2 grams) Wire Ball <i>Shear</i> (>9.1 grams) System: Dage	MILSTD883-2 Method 2011.10 AEC Q100.001	5 units, 30 bonds per lot	Lot 1 0/30  Lot 2 0/30  Lot 3 0/30	Pass  Pass  Pass	
<b>High Temperature Storage Life</b>	<b>Stress Condition:</b> Bake 175°C, 5000 hrs System: HERAEUS  <b>Electrical Test:</b> 25°C System: Magnum	JESD22-A103	45 units per lot	Lot 1 0/45  Lot 2 0/45  Lot 3 0/45	Pass  Pass  Pass	

# PACKAGE QUALIFICATION REPORT

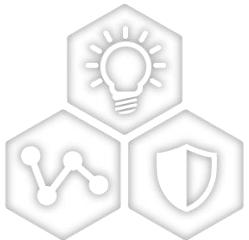
Test Number (Reference)	Test Condition	Standard/ Method	Qty. (Acc.)	Def/SS.	Result	Remarks
<b>Bond Strength, 0 Hour</b>	<b>Bond Strength:</b>  <b>System:</b> Dage Wire Bond Pull (> 2 grams) Wire Ball Shear (>9.1 grams) System: Dage	MILSTD883-2 Method 2011.10 AEC Q100.001	5 units, 30 bonds per lot	Lot 1 0/30  Lot 2 0/30  Lot 3 0/30	Pass  Pass  Pass	
<b>Physical Dimensions</b>		JESD22 B100 and B108	10 units per lot	0/30		
<b>Standard Pb- free Solderability</b>	> 95% lead coverage	J-STD-002D	22 units 1 lot	0/22	Pass	

**CCB 4847**  
**Pre and Post Change Summary**  
**PCN# ALAN-20BLUP482**



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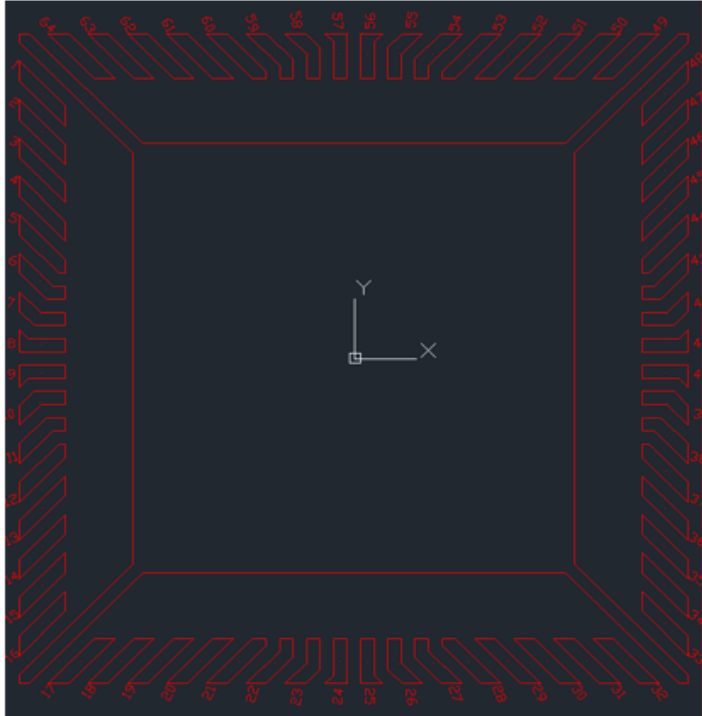
A Leading Provider of Smart, Connected and Secure Embedded Control Solutions



SMART | CONNECTED | SECURE

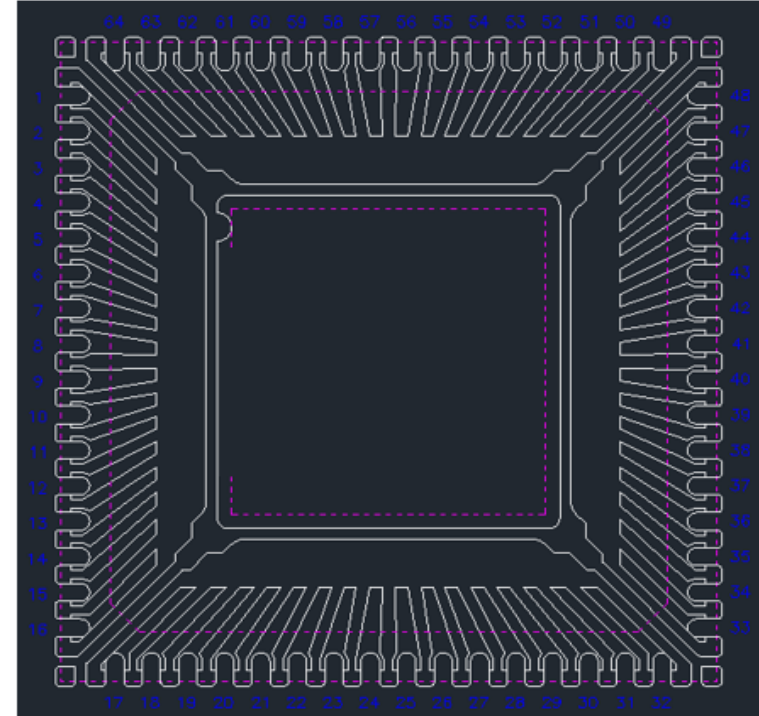
# Pre and Post Change Summary

## ASE Inc. (ASE)



Material	C194
Paddle size	193 X 193 mils

## Amkor Technology Philippines (P3/P4), INC. (ATP7)



Material	C194
Paddle size	197X197 mils

ALAN-20BLUP482 - CCB 4847 Final Notice: Qualification of ATP7 as an additional assembly site for selected Atme

Affected Catalog Part Numbers(CPN)

ATSAME51J19A-MU  
ATSAME51J18A-MU  
ATSAMD51J18A-MU  
ATSAMD51J19A-MU  
ATSAMD51J20A-MU  
ATSAME53J18A-MU  
ATSAME53J19A-MU  
ATSAME53J20A-MU  
ATSAME51J20A-MU  
ATSAMD51J18A-MU-EFP  
ATSAMD51J19A-MU-EFP  
ATSAMD51J20A-MU-EFP  
ATSAME51J18A-MU-EFP  
ATSAME51J19A-MU-EFP  
ATSAME51J20A-MU-EFP  
ATSAME53J18A-MU-EFP  
ATSAME53J19A-MU-EFP  
ATSAME53J20A-MU-EFP  
ATSAMD51J19A-MUN01  
ATSAME53J18A-MUN02  
ATSAME51J19A-MUT  
ATSAME51J18A-MUT  
ATSAMD51J18A-MUT  
ATSAMD51J19A-MUT  
ATSAMD51J20A-MUT  
ATSAME53J18A-MUT  
ATSAME53J19A-MUT  
ATSAME53J20A-MUT  
ATSAME51J20A-MUT  
ATSAMD51J18A-MUT-EFP  
ATSAMD51J19A-MUT-EFP  
ATSAMD51J20A-MUT-EFP  
ATSAME51J18A-MUT-EFP  
ATSAME51J19A-MUT-EFP  
ATSAME51J20A-MUT-EFP  
ATSAME53J18A-MUT-EFP  
ATSAME53J19A-MUT-EFP  
ATSAME53J20A-MUT-EFP  
ATSAMD51J19A-MUTN01