



## Product Change Notification - GBNG-05QUVX037

**Date:**

04 Mar 2019

**Product Category:**

8-bit Microcontrollers

**Affected CPNs:****Notification subject:**

CCB 3496 and 3496.001 Final Notice: Qualification of MMT as an additional assembly site for selected Atmel products of the 35.4K, 35.5K and 35.9K wafer technologies available in 64L TQFP (14x14x1.0mm) and 100L TQFP (14x14x1.0mm) packages.

**Notification text:****PCN Status:**

Final notification

**PCN Type:**

Manufacturing Change

**Microchip Parts Affected:**

Please open one of the icons found in the Affected CPNs section above.

NOTE: For your convenience Microchip includes identical files in two formats (.pdf and .xls).

**Description of Change:**

Qualification of MMT as an additional assembly site for selected Atmel products of the 35.4K, 35.5K and 35.9K wafer technologies available in 64L TQFP (14x14x1.0mm) and 100L TQFP (14x14x1.0mm) packages.

**Pre Change:**

Assembled in ASE using Au, PdCu or CuPdAu wire, CRM-1076WA or 2288A die attach, G631H mold compound and C7025 lead frame material or assembled in LPI using Au or CuPdAu wire, CRM-1033BF die attach, G700 mold compound and C194 lead frame material or assembled at ANAP using AuPd or PdCu wire, 3200 or AP4200 die attach, G700, G770Y or G631HQ mold compound and C194 lead frame material.

**Post Change:**

Assembled in ASE using Au, PdCu or CuPdAu wire, CRM-1076WA or 2288A die attach, G631H mold compound and C7025 lead frame material or assembled in LPI using Au or CuPdAu wire, CRM-1033BF die attach, G700 mold compound and C194 lead frame material or assembled at ANAP using AuPd or PdCu wire, 3200 or AP4200 die attach, G700, G770Y or G631HQ mold compound and C194 lead frame material or assembled in MMT using Au wire, 3280 die attach, G700 mold compound and C194 lead frame material.

**Pre and Post Change Summary:**

	Pre Change			Post Change			
<b>Assembly Site</b>	ASE Inc. Taiwan (ASE)	Lingsen Precision Industries, LTD. (LPI)	Amkor Technology Philippine (P1/P2), INC. (ANAP)	ASE Inc. Taiwan (ASE)	Lingsen Precision Industries, LTD. (LPI)	Amkor Technology Philippine (P1/P2), INC. (ANAP)*	Microchip Technology Thailand



															d (Branch) (MMT)
<b>Wire material</b>	AuPdCu	CuPd Au	CuPd Au	AuPd	PdCu	Au	PdCu	CuPd Au	CuPd Au	AuPd	PdCu	Au			
<b>Die attach material</b>	2288A	CRM-1076WA	CRM-1033BF	3230	AP4200	2288A*	CRM-1076WA	CRM-1033BF	3230	AP4200					3280
<b>Molding compound material</b>	G631H	G700	G700	G770Y	G631HQ	G631H	G700	G700L	G770Y	G631HQ					G700
<b>Lead frame material</b>	C7025	C194	C194	C194	C7025	C194	C194	C194	C194						C194
<b>MSL Classification</b>	MSL 3	MSL 3	MSL 3	MSL 3	MSL 3	MSL 3	MSL 3	MSL 3	MSL 3						MSL 3

**Impacts to Data Sheet:**

None

**Change Impact:**

None

**Reason for Change:**

To Improve on-time delivery performance by qualifying MMT as an additional assembly site.

**Change Implementation Status:**

In Progress

**Estimated First Ship Date:**

For 100L TQFP package: January 19, 2019 (date code: 1903)

For 64L TQFP package: March 30, 2019 (date code: 1913)

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

**Time Table Summary:**

	August 2018	->	December 2018	January 2019	February 2019	March 2019
Workweek	33	34	48	5	11	18
Initial PCN Issue Date	X					
Qual Report Availability			X			
Final PCN Issue Date			X			
Estimated Implementation Date				X		X

\*For 64L TQFP package

**Method to Identify Change:**

Traceability code

**Qualification Report:**

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

**Revision History:**

**August 09, 2018:** Issued initial notification.

**December 19, 2018:** Issued final notification. Attached the qualification report. Provided estimated first ship date to be on January 19, 2019.

**March 4, 2019:** Re-issued final notification to update the subject and description because of the update in scope to include 64L TQFP package. Updated the affected CPN list in accordance with the update to the scope. Updated the pre and post change summary table MSL classification for MMT site from MSL 1 and 2 to MSL 3. Updated the pre and post change to add ANAP assembly site which is applicable for 64L TQFP package.

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

**Attachment(s):**

[PCN\\_GBNG-05QUVX037\\_Qual Report.pdf](#)

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

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If you wish to [change your PCN profile, including opt out](#), please go to the [PCN home page](#) select login and sign into your myMicrochip account. Select a profile option from the left navigation bar and make the applicable selections.

Affected Catalog Part Numbers (CPN)

AT90CAN128-16AU  
AT90CAN128-16AUR  
AT90CAN32-16AU  
AT90CAN32-16AUR  
AT90CAN64-16AU  
AT90CAN64-16AUR  
AT90USB1286-AU  
AT90USB1286-AUR  
AT90USB1287-AU  
AT90USB1287-AUR  
AT90USB646-AU  
AT90USB646-AUR  
AT90USB647-AU  
AT90USB647-AUR  
ATHON169A-AUR  
ATMEGA1280-16AU  
ATMEGA1280-16AU-HCM  
ATMEGA1280-16AUR  
ATMEGA1280V-8AU  
ATMEGA1280V-8AUR  
ATMEGA1281-16AU  
ATMEGA1281-16AUR  
ATMEGA128-16AN  
ATMEGA128-16ANR  
ATMEGA128-16AU  
ATMEGA128-16AUA4  
ATMEGA128-16AUR  
ATMEGA128-16AURA0  
ATMEGA128-16AURA3  
ATMEGA1281V-8AU  
ATMEGA1281V-8AUR  
ATMEGA128A-AN  
ATMEGA128A-ANR  
ATMEGA128A-AU  
ATMEGA128A-AUA2  
ATMEGA128A-AU-HCM  
ATMEGA128A-AUR  
ATMEGA128L-8AN  
ATMEGA128L-8ANR  
ATMEGA128L-8AU  
ATMEGA128L-8AUA4  
ATMEGA128L-8AUR  
ATMEGA128L-8AURA3  
ATMEGA128L-8AURA5  
ATMEGA128L-8AURA6  
ATMEGA165A-AU

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GBNG-05QUVX037 - CCB 3496 and 3496.001 Final Notice: Qualification of MMT as an additional assembly site for selected Atmel products of the 35.4K, 35.5K and 35.9K wafer technologies available in 64L TQFP (14x14x1.0mm) and 100L TQFP (14x14x1.0mm) packages.

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ATMEGA165A-AUR

ATMEGA165P-16AN

ATMEGA165P-16ANR

ATMEGA165P-16AU

ATMEGA165P-16AUR

ATMEGA165PA-AU

ATMEGA165PA-AUR

ATMEGA165PV-8AN

ATMEGA165PV-8ANR

ATMEGA165PV-8AU

ATMEGA165PV-8AUR

ATMEGA169A-AU

ATMEGA169A-AUR

ATMEGA169P-16AU

ATMEGA169P-16AUR

ATMEGA169PA-AN

ATMEGA169PA-ANR

ATMEGA169PA-AU

ATMEGA169PA-AUR

ATMEGA169PV-8AU

ATMEGA169PV-8AUR

ATMEGA169PV-8AURA3

ATMEGA2560-16AUA0

ATMEGA2560-16AU-HCM

ATMEGA2560-16AUR

ATMEGA2560-16AURA0

ATMEGA2560V-8AU

ATMEGA2560V-8AUA0

ATMEGA2560V-8AUR

ATMEGA2560V-8AURA0

ATMEGA2561-16AU

ATMEGA2561-16AUA0

ATMEGA2561-16AUR

ATMEGA2561-16AURA0

ATMEGA2561V-8AU

ATMEGA2561V-8AUA0

ATMEGA2561V-8AUR

ATMEGA2561V-8AURA0

ATMEGA3250-16AU

ATMEGA3250-16AUR

ATMEGA3250A-AU

ATMEGA3250A-AUR

ATMEGA3250P-20AU

ATMEGA3250P-20AUR

ATMEGA3250PA-AU

ATMEGA3250PA-AUR

ATMEGA3250PV-10AU

ATMEGA3250PV-10AUR

ATMEGA3250V-8AU

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ATMEGA3250V-8AUR

ATMEGA325-16AU

ATMEGA325-16AUR

ATMEGA325A-AN

ATMEGA325A-ANR

ATMEGA325A-AU

ATMEGA325A-AUR

ATMEGA325P-20AU

ATMEGA325P-20AUR

ATMEGA325P-20AURA0

ATMEGA325PA-AU

ATMEGA325PA-AUR

ATMEGA325PV-10AU

ATMEGA325PV-10AUR

ATMEGA325PV-10AURA1

ATMEGA325V-8AU

ATMEGA325V-8AUR

ATMEGA3290-16AU

ATMEGA3290-16AUR

ATMEGA3290A-AU

ATMEGA3290A-AUR

ATMEGA3290P-20AU

ATMEGA3290P-20AUR

ATMEGA3290PA-AU

ATMEGA3290PA-AUR

ATMEGA3290PV-10AU

ATMEGA3290PV-10AUA0

ATMEGA3290PV-10AUR

ATMEGA3290V-8AU

ATMEGA3290V-8AUR

ATMEGA329-16AU

ATMEGA329-16AUR

ATMEGA329A-AU

ATMEGA329A-AUR

ATMEGA329P-16AUR

ATMEGA329P-20ANR

ATMEGA329P-20AU

ATMEGA329P-20AUR

ATMEGA329PA-AU

ATMEGA329PA-AUR

ATMEGA329PV-10AU

ATMEGA329PV-10AUR

ATMEGA329PV-10AURA0

ATMEGA329V-8AU

ATMEGA329V-8AUR

ATMEGA640-16AU

ATMEGA640-16AUR

ATMEGA640-16AURA0

ATMEGA640V-8AU

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ATMEGA640V-8AUK

ATMEGA64-16AU  
ATMEGA64-16AUA0  
ATMEGA64-16AUA2  
ATMEGA64-16AUR  
ATMEGA64-16AURA0  
ATMEGA64-16AURA1  
ATMEGA6450-16AU  
ATMEGA6450-16AUR  
ATMEGA6450A-AU  
ATMEGA6450A-AUR  
ATMEGA6450P-AU  
ATMEGA6450P-AUR  
ATMEGA6450V-8AU  
ATMEGA6450V-8AUR  
ATMEGA645-16AU  
ATMEGA645-16AUR  
ATMEGA645A-AU  
ATMEGA645A-AUR  
ATMEGA645P-AU  
ATMEGA645P-AUR  
ATMEGA645V-8AU  
ATMEGA645V-8AUR  
ATMEGA6490-16AU  
ATMEGA6490-16AUR  
ATMEGA6490A-AU  
ATMEGA6490A-AUR  
ATMEGA6490P-AU  
ATMEGA6490P-AUR  
ATMEGA6490V-8AU  
ATMEGA6490V-8AUR  
ATMEGA649-16AU  
ATMEGA649-16AUR  
ATMEGA649A-AU  
ATMEGA649A-AUR  
ATMEGA649P-AU  
ATMEGA649P-AUR  
ATMEGA649V-8AU  
ATMEGA649V-8AUR  
ATMEGA64A-AN  
ATMEGA64A-ANR  
ATMEGA64A-AU  
ATMEGA64A-AUR  
ATMEGA64L-8AQ  
ATMEGA64L-8AQR  
ATMEGA64L-8AQRA1  
ATMEGA64L-8AU  
ATMEGA64L-8AUA2  
ATMEGA64L-8AUA4

ATMEGA64L-8AUR

ATMEGA64L-8AURA1  
ATMEGA64L-8AURA3  
ATXMEGA128A1-AU  
ATXMEGA128A1-AUR  
ATXMEGA128A1U-AN  
ATXMEGA128A1U-ANR  
ATXMEGA128A1U-AU  
ATXMEGA128A1U-AUR  
ATXMEGA128A3-AU  
ATXMEGA128A3-AUR  
ATXMEGA128A3U-AU  
ATXMEGA128A3U-AUR  
ATXMEGA128A3U-AURA0  
ATXMEGA128B1-ANR  
ATXMEGA128B1-AU  
ATXMEGA128B1-AUR  
ATXMEGA128B1-AURA0  
ATXMEGA128B3-AN  
ATXMEGA128B3-ANR  
ATXMEGA128B3-AU  
ATXMEGA128B3-AUR  
ATXMEGA128C3-AN  
ATXMEGA128C3-ANR  
ATXMEGA128C3-AU  
ATXMEGA128C3-AUR  
ATXMEGA128D3-AN  
ATXMEGA128D3-ANR  
ATXMEGA128D3-AU  
ATXMEGA128D3-AUA0  
ATXMEGA128D3-AUA1  
ATXMEGA128D3-AUR  
ATXMEGA128D3-AURA1  
ATXMEGA192A3-AU  
ATXMEGA192A3-AUR  
ATXMEGA192A3U-AN  
ATXMEGA192A3U-ANR  
ATXMEGA192A3U-AU  
ATXMEGA192A3U-AUR  
ATXMEGA192C3-AU  
ATXMEGA192C3-AUR  
ATXMEGA192D3-AU  
ATXMEGA192D3-AUA0  
ATXMEGA192D3-AUR  
ATXMEGA192D3-AURA0  
ATXMEGA192D3-AURA1  
ATXMEGA256A3-AU  
ATXMEGA256A3-AUR  
ATXMEGA256A3B-AU



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ATXMEGA256A3B-AUR  
ATXMEGA256A3BU-AU  
ATXMEGA256A3BU-AUR  
ATXMEGA256A3U6L-AU  
ATXMEGA256A3U-AN  
ATXMEGA256A3U-ANR  
ATXMEGA256A3U-AU  
ATXMEGA256A3U-AUR  
ATXMEGA256C3-AU  
ATXMEGA256C3-AUA0  
ATXMEGA256C3-AUR  
ATXMEGA256C3-AURA0  
ATXMEGA256D3-AU  
ATXMEGA256D3-AUA0  
ATXMEGA256D3-AUA1  
ATXMEGA256D3-AUA3  
ATXMEGA256D3-AUR  
ATXMEGA256D3-AURA0  
ATXMEGA256D3-AURA1  
ATXMEGA256D3-AURA2  
ATXMEGA256D3-AURA3  
ATXMEGA32C3-AN  
ATXMEGA32C3-ANR  
ATXMEGA32C3-AU  
ATXMEGA32C3-AUR  
ATXMEGA32D3-AN  
ATXMEGA32D3-ANR  
ATXMEGA32D3-AU  
ATXMEGA32D3-AUA0  
ATXMEGA32D3-AUR  
ATXMEGA384C3-AU  
ATXMEGA384C3-AUR  
ATXMEGA384D3-AU  
ATXMEGA64A1-AU  
ATXMEGA64A1-AUR  
ATXMEGA64A1U-AU  
ATXMEGA64A1U-AUR  
ATXMEGA64A3-AU  
ATXMEGA64A3-AUR  
ATXMEGA64A3-AURA0  
ATXMEGA64A3U-AU  
ATXMEGA64A3U-AUR  
ATXMEGA64B1-ANR  
ATXMEGA64B1-AU  
ATXMEGA64B1-AUA0  
ATXMEGA64B1-AUR  
ATXMEGA64B3-AN  
ATXMEGA64B3-ANR  
ATXMEGA64B3-AU

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ATXMEGA64B3-AUR

ATXMEGA64C3-AN

ATXMEGA64C3-ANR

ATXMEGA64C3-AU

ATXMEGA64C3-AUR

ATXMEGA64D3-AN

ATXMEGA64D3-ANR

ATXMEGA64D3-AU

ATXMEGA64D3-AUA1

ATXMEGA64D3-AUA2

ATXMEGA64D3-AUA3

ATXMEGA64D3-AUA4

ATXMEGA64D3-AUR

ATXMEGA64D3-AURA0

ATXMEGA64D3-AURA2

ATXMEGA64D3-AURA3

ATXMEGA64D3-AURA4

ATXMEGA64D3-AURA6



**MICROCHIP**

**QUALIFICATION REPORT SUMMARY**  
RELIABILITY LABORATORY

**PCN #: GBNG-05QUVX037**

**Date:**  
**December 11, 2018**

**Qualification of MMT as an additional assembly site for selected Atmel products of the 35.4K, 35.5K and 35.9K wafer technologies available in 100L TQFP (14x14x1.0mm) package. The selected Atmel products of the 35.4K, 35.5K and 35.9K wafer technologies available in 64L TQFP (14x14x1.0mm) package will qualify by similarity (QBS).**



## MICROCHIP PACKAGE QUALIFICATION REPORT

**Purpose:** Qualification of MMT as an additional assembly site for selected Atmel products of the 35.4K, 35.5K and 35.9K wafer technologies available in 100L TQFP (14x14x1.0mm) package. The selected Atmel products of the 35.4K, 35.5K and 35.9K wafer technologies available in 64L TQFP (14x14x1.0mm) package will qualify by similarity (QBS).

<b>CCB</b>	3496 and 3496.001
<b>CN</b>	ES243709
<b>QUAL ID</b>	Q18177 Rev. A
<b>MP CODE</b>	355E37E5XA01
<b>Part No.</b>	ATMEGA2560-16AU
<b>Bonding No.</b>	BDM-001881 REV. C
<b><u>Package</u></b>	
<b>Type</b>	100L TQFP
<b>Package size</b>	14x14x1.0 mm
<b>Die thickness</b>	11 mils
<b>Die size</b>	261.0x213.0 mils
<b><u>Lead Frame</u></b>	
<b>Paddle size</b>	280x280 mils
<b>Material</b>	C7025
<b>Surface</b>	Bare Cu
<b>Process</b>	Etched
<b>Lead Lock</b>	No
<b>Part Number</b>	10110005
<b>Treatment</b>	BOT
<b><u>Material</u></b>	
<b>Epoxy</b>	3280
<b>Wire</b>	Au wire
<b>Mold Compound</b>	G700HA
<b>Plating Composition</b>	Matte Tin



# MICROCHIP PACKAGE QUALIFICATION REPORT

## Manufacturing Information

Assembly Lot No.	Wafer Lot No.	Date Code
MMT-192701602.000	MCS0519217904.120	1840576
MMT-192701603.000	MCS0519217904.120	1840577
MMT-192701604.000	MCS0519217904.120	1840578

### Result

Pass     Fail     \_\_\_\_\_

100L TQFP 14x14x1.0mm assembled by MMT pass reliability test per QCI-39000. This package was qualified the 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>Moisture/Reflow Sensitivity Classification Test (At MSL Level 3)</b>	30°C/ 60%RH Moisture Soak 192 hrs. System: TABAI ESPEC Model PR-3SPH 3x Convection-Reflow 265°C max System: Vitronics Soltec MR1243  ( IPC/JEDEC J-STD-020E)	IPC/JEDEC J-STD-020E	135	0/135	Pass	

<b><u>Precondition Prior Perform Reliability Tests (At MSL Level 3)</u></b>	<b>Electrical Test</b> :+25°C and 85°C System: NEX TEST GT	JESD22-A113	693(0)	693		Good Devices
	Bake 150°C, 24 hrs System: CHINEE			693		
	30°C/60%RH Moisture Soak 192 hrs. System: TABAI ESPEC Model PR-3SPH			693		
	3x Convection-Reflow 265°C max System: Vitronics Soltec MR1243			693		
	<b>Electrical Test</b> :+25°C and 85°C System: NEX TEST GT			0/693		

# PACKAGE QUALIFICATION REPORT

Test Number (Reference)	Test Condition	Standard/ Method	Qty. (Acc.)	Def/SS.	Result	Remarks
<b>Temp Cycle</b>	<b>Stress Condition:</b> -65°C to +150°C, 500 Cycles System : TABAI ESPEC TSA-70H	JESD22-A104		231		Parts had been pre-conditioned at 260°C  77 units / lot
	<b>Electrical Test:</b> + 85°C System: NEX TEST GT		231(0)	0/231	Pass	
	<b>Bond Strength:</b> Wire Pull (> 2.5 grams) Bond Shear (>15.00 grams)		15 (0)	0/15	Pass	
<b>UNBIASED-HAST</b>	<b>Stress Condition:</b> +130°C/85%RH, 96 hrs. System: HAST 6000X	JESD22-A118		231		Parts had been pre-conditioned at 260°C  77 units / lot
	<b>Electrical Test:</b> +25°C System: NEX TEST GT		231(0)	0/231	Pass	
<b>HAST</b>	<b>Stress Condition:</b> +130°C/85%RH, 96 hrs. <b>Bias Volt:</b> 5.5 Volts System: HAST 6000X	JESD22-A110		231		Parts had been pre-conditioned at 260°C  77 units / lot
	<b>Electrical Test:</b> +25°C and 85°C System: NEX TEST GT		231(0)	0/231	Pass	
<b>High Temperature Storage Life</b>	<b>Stress Condition:</b> Bake 175°C, 504 hrs System: SHEL LAB	JESD22-A103		45		45 units
	<b>Electrical Test :</b> +25°C and 85°C System: NEX TEST GT		45(0)	0/45	Pass	

## PACKAGE QUALIFICATION REPORT

Test Number (Reference)	Test Condition	Standard/ Method	Qty. (Acc.)	Def/SS.	Result	Remarks
<b>Solderability</b> <b>Temp 215°C</b>	<b>Steam Aging:</b> Temp 93°C,8Hrs System: SAS-3000 Solder Dipping: Solder Temp.215°C Solder material: SnPb Sn63,Pb37 System: ERSA RA 2200D Visual Inspection: External Visual Inspection	J-STD-002	22 (0)	22  22 0/22	Pass	
<b>Solderability</b> <b>Temp 245°C</b>	<b>Steam Aging:</b> Temp 93°C,8Hrs System: SAS-3000 Solder Dipping:Solder Temp.245°C Solder Material:Pb Free Sn 95.5Ag3.9 Cu0.6 System: ERSA RA 2200D Visual Inspection: External Visual Inspection	J-STD-002	22 (0)	22  22 0/22	Pass	
<b>Wire sweep</b>	Wire sweep Inspection 15 Wires / lot from 3 lots	-	45(0)  Wires	0/45	Pass	
<b>Physical</b> <b>Dimensions</b>	Physical Dimension, 10 units/lot from 3 lots	JESD22- B100/B108	30(0) Units	0/30	Pass	
<b>Bond Strength</b> <b>Data Assembly</b>	Wire Pull (> 2.5 grams)	M2011	30 (0) Wires	0/30	Pass	
	Bond Shear (>15.00 grams)	JESD22- B116	30 (0) bonds	0/30	Pass	