

PRODUCT/PROCESS CHANGE NOTICE (PCN)

PCN Number: **04-14**

Date Issued: **September 15, 2004**

Product(s) Affected: **PI74FCT3244
PI74LPT244
PI74LPT373; PI74LCX373
PI74LPT374**

Manufacturing Location Affected: **Moving these CSMS Fab 1 products to already approved CSMS Fab 2.**

Date Effective: **December 15, 2004**

(Any remaining Fab 1 inventory may ship until depleted).

Means of Distinguishing Changed Devices:

- Product Mark:
 Back Mark
 Date Code: **Added letter code ***
 Other

*** Product will have a letter "B" as the first character of the date code to signify CSMS Fab 2. All product samples should be identified this way.**

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Attachment: Yes; No

No significant product features changed. Pericom Product and Design Engineering Characterization data confirmed Fab 2 devices should have no critical performance differences from Fab 1 products.

Samples: **Available upon request to Sales**

Description and Purpose of Change:

Products are transferring from approved wafer fab subcontractor Chartered Semiconductor Manufacturing Singapore's (CSMS) Fab 1, to the already approved Fab 2 facility. These devices use the same base array die, design and process, and will be manufactured in Fab 2 with essentially the same qualified CMOS 0.5- μ m SPDM process type as used in Fab 1. CSMS closed the older 150-mm wafer Fab 1 facility at the end of March 2004. Fab 2 will manufacture these Pericom products using 200-mm wafers. See CSMS website for more information:

<http://www.charteredsemi.com/media/corp/2003n/20030213.asp>

- Die Technology
 Wafer Fabrication
 Assembly Process
 Equipment
 Material
 Testing
 Manufacturing Site
 Data Sheet
 Other: **CSMS Fab 1 closure, porting to Fab 2**

Reliability/Qualification Summary: **Generic data:** http://www.pericom.com/pdf/gen/rel_CSM2.pdf

Customer Acknowledgement of Receipt:

Customer: _____

Name: _____

Title: _____

Date: _____

E-Mail: _____

Phone: _____

Fax: _____

Approval for shipments prior to effective date

Customer Comments (Optional): _____



Date: July 14, 2004

Subject: PI74LPT244 Full Characterization Report

Introduction:

PI74LPT244 is a Fast CMOS 3.3V 8-Bit Buffer/Line Driver from CSMS Fab-2, and is compared side by side with the current production array from CSM Fab 1

Reference:

*New Array: L203
CSMS Fab 2: 0.5um, SPDM
Date Code: BZ0425OC
Lot number: EA18428.3L
Package: SOIC (S20)*

*Old Array: CLPT20
CSMS Fab 1: 0.5um, SPDM
Date Code: A10046AOC
Lot number: EY71536.5A
Package: SOIC (S20)*

Data Sheet:

PS2058B (04/29/04)

Equipment:

HP power supply & DMM,
HP4145B DC Analyzer
HP4285 LCR Meter
TDS8000 Oscilloscope, TX P6209 Active Probe
HP8082A Pulse generator
Thermostream TP041000-A

Tables:

Table 1. DC characteristics
Table 2-3. Vout vs Iout
Table 4. AC Characteristics
Table 5. Input Capacitance and Cpd
Table 6. Dynamic Icc at 25C

Conclusion:

1. Both arrays meet the C-speed spec requirements.
2. Input and Output pins are 5V tolerant.

Table 1. DC Characteristics

Symb	Test Conditions	Vcc	(FAB-2)			(FAB-1)			Min Spec	Max Spec	unit
			-10°C	25°C	90°C	-10°C	25°C	90°C			
VIH	Input High Voltage	2.7 V	1.180	1.185	1.205	1.175	1.180	1.200	2.0		V
VIH	Input High Voltage	3.0 V	1.315	1.320	1.340	1.310	1.315	1.340	2.0		V
VIH	Input High Voltage	3.3 V	1.455	1.460	1.485	1.445	1.445	1.480	2.0		V
VIH	Input High Voltage	3.6 V	1.595	1.600	1.625	1.580	1.590	1.620	2.0		V
VIL	Input Low Voltage	2.7 V	1.210	1.220	1.235	1.220	1.235	1.255		0.8	V
VIL	Input Low Voltage	3.0 V	1.345	1.355	1.375	1.360	1.370	1.390		0.8	V
VIL	Input Low Voltage	3.3 V	1.480	1.490	1.515	1.495	1.505	1.530		0.8	V
VIL	Input Low Voltage	3.6 V	1.620	1.630	1.655	1.630	1.645	1.675		0.8	V
VH	Input Hysteresis	2.7 V	0.030	0.035	0.030	0.045	0.055	0.055	(typ)	0.150	V
VH	Input Hysteresis	3.0 V	0.030	0.035	0.035	0.050	0.055	0.050	(typ)	0.150	V
VH	Input Hysteresis	3.3 V	0.025	0.030	0.030	0.050	0.060	0.050	(typ)	0.150	V
VH	Input Hysteresis	3.6 V	0.025	0.030	0.030	0.050	0.055	0.055	(typ)	0.150	V
VOH	IOH=-3mA	2.7 V	2.62	2.61	2.61	2.62	2.61	2.60	2.4		V
VOH	IOH=-8mA	3.0 V	2.79	2.78	2.75	2.80	2.78	2.75	2.4		V
VOH	IOH=-24mA	3.0 V	2.40	2.36	2.28	2.39	2.33	2.22	2.2		V
VOL	IOL= 16mA	2.7 V	0.19	0.20	0.24	0.18	0.20	0.24		0.4	V
VOL	IOL= 24mA	2.7 V	0.29	0.32	0.37	0.28	0.31	0.38		0.5	V
VOL	IOL= 24mA	3.0 V	0.27	0.30	0.35	0.27	0.29	0.35		0.5	V
IIN	Vin= 0 V	3.6 V	-72 p	42 p	95 p	-106 p	96 p	48 p		1u	A
IIN	Vin= 3.6 V	3.6 V	759 p	-364 p	3 n	-67 p	47 p	519 p		1u	A
IIN	Vin= 5.5 V	3.6 V	-779 p	-155 p	4 n	-107 p	95 p	841 p		1u	A
VIK	Iin=-18mA, DA pin	2.7 V	-0.84	-0.81	-0.73	-0.91	-0.88	-0.76		-1.2	V
VIK	Iin=-18mA, /OE pin	2.7 V	-0.92	-0.87	-0.78	-0.91	-0.88	-0.76		-1.2	V
VIK	Iin=-18mA, OA pin	2.7 V	-0.92	-0.87	-0.78	-0.86	-0.83	-0.74		-1.2	V
Ioff	Vout= 0 V	0 V	350 p	730 p	706 p	-196 p	-145 p	24 p		1u	A
Ioff	Vout= 3.6 V	0 V	-437 p	24 p	6 n	368 p	36 p	1.1 n		1u	A
Ioff	Vout= 5.5V	0 V	342 p	811 p	13 n	14 p	160 p	1.5 n		1u	A
IOZ	Vout= 0 V	3.6 V	708 p	862 p	2 n	138 p	150 p	324 p		1u	A
IOZ	Vout= 3.6 V	3.6 V	727 p	166 p	4 n	353 p	184 p	1.1 n		1u	A
IOZ	Vout= 5.5V	3.6 V	-929 p	-101 p	7 n	135 p	103 p	1.3 n		1u	A
IOS	Vout= 0 V	3.6 V	-116	-111	-101	-90	-84	-77	-60	-240	mA
IODL	Vout= 1.5 V	3.3 V	105	98	85	104	95	82	50	200	mA
IODH	Vout= 1.5V	3.3 V	-67	-64	-58	-62	-57	-51	-36	-110	mA
IccL	Vin=0V	3.6 V	42 p	1 n	37 n	-250 p	426 p	4.0 n		10	uA
IccH	Vin=3.6 V	3.6 V	-1n	2 n	39 n	-263 p	428 p	4.1 n		10	uA
ΔIcc	Vin=Vcc-0.6V	3.6 V	1.5 u	5.9 u	33.7 u	24 n	126 n	2.5 u		500	uA

Table 2. Vout vs. Iout, Vcc=2.7V, 25C

Vout	(FAB-2)		(FAB-1)	
	IOL	IOH	IOL	IOH
0	-17.5 uA	-71.1 mA	163 uA	-48.5 mA
0.25	19.3 mA	-68.0 mA	19.5 mA	-47.6 mA
0.50	36.7 mA	-64.3 mA	37.1 mA	-46.4 mA
0.75	51.9 mA	-59.5 mA	52.0 mA	-45.0 mA
1.00	63.9 mA	-53.9 mA	63.5 mA	-42.7 mA
1.25	72.9 mA	-47.8 mA	71.3 mA	-39.5 mA
1.50	78.8 mA	-40.6 mA	75.9 mA	-35.1 mA
1.75	82.0 mA	-33.1 mA	78.2 mA	-29.7 mA
2.00	83.5 mA	-24.9 mA	79.2 mA	-23.0 mA
2.25	84.2 mA	-16.1 mA	79.5 mA	-15.3 mA
2.50	84.6 mA	-6.97 mA	79.6 mA	-6.74 mA
2.70	84.6 mA	-11.0 uA	79.5 mA	15.9 uA

Table 3. Vout vs. Iout, Vcc=3.0V, 25C

Vout	(FAB-2)		(FAB-1)	
	IOL	IOH	IOL	IOH
0	-68 uA	-84.4 mA	44.9 uA	-60.7 mA
0.25	19.8 mA	-80.8 mA	20.8 mA	-59.5 mA
0.50	38.2 mA	-76.5 mA	39.7 mA	-58.1 mA
0.75	54.7 mA	-71.4 mA	56.3 mA	-56.5 mA
1.00	68.5 mA	-65.8 mA	69.8 mA	-54.0 mA
1.25	79.3 mA	-59.3 mA	80.1 mA	-50.6 mA
1.50	87.3 mA	-52.2 mA	87.1 mA	-46.3 mA
1.75	92.6 mA	-44.5 mA	91.2 mA	-40.7 mA
2.00	95.5 mA	-36.3 mA	93.0 mA	-34.1 mA
2.25	97.0 mA	-27.8 mA	94.0 mA	-26.8 mA
2.50	97.8 mA	-18.8 mA	94.1 mA	-18.5 mA
2.75	98.1 mA	-9.1 mA	94.2 mA	-9.11 mA
3.00	98.0 mA	-11.3 uA	94.1 mA	18.0 uA

Table 4. AC Characteristics

Symb.	Direction	Vcc	Load	(FAB-2)			(FAB-1)			C Speed	Units
				-10°C	25°C	90°C	-10°C	25°C	90°C		
tpLH	D-O	2.7 V	Load A	2.92	3.05	3.39	3.14	3.35	3.73	4.1	nS
tpHL	D-O	2.7 V	Load A	3.08	3.21	3.52	2.98	3.16	3.49	4.1	nS
tpLH	D-O	3.0 V	Load A	2.62	2.74	3.03	2.74	2.92	3.28	4.1	nS
tpHL	D-O	3.0 V	Load A	3.03	3.18	3.50	2.93	3.11	3.43	4.1	nS
tpZH	/OE-O	2.7 V	Load B	3.49	3.67	4.06	4.05	4.25	4.70	5.8	nS
tpHZ	/OE-O	2.7 V	Load B	2.87	2.99	3.25	3.10	3.22	3.60	5.2	nS
tpZH	/OE-O	3.0 V	Load B	3.04	3.17	3.51	3.37	3.57	3.96	5.8	nS
tpHZ	/OE-O	3.0 V	Load B	2.65	2.77	3.05	2.82	3.02	3.32	5.2	nS
tpZL	/OE-O	2.7 V	Load C	4.23	4.47	5.03	4.35	4.66	5.15	5.8	nS
tpLZ	/OE-O	2.7 V	Load C	2.73	2.84	3.01	2.84	3.01	3.24	5.2	nS
tpZL	/OE-O	3.0 V	Load C	3.67	3.89	4.30	3.78	4.02	4.43	5.8	nS
tpLZ	/OE-O	3.0 V	Load C	2.66	2.77	2.92	2.79	2.94	3.18	5.2	nS

Load A: 50pF// 500Ω to Gnd

Load B: 50pF// 500Ω // 500Ω

Load C: 50pF// 500Ω to Gnd, 500Ω to 6V

Table 5. Input Capacitance, 25C

Parameter	Test Conditions	Vcc	(FAB-2)	(FAB-1)	Typ	unit
Cin	Control Input, /OE	3.3 V	2.9	2.8	6	pF
Cin	Input, DA	3.3 V	2.9	2.8	6	pF
Cin	Output, OA	3.3 V	4.4	4.4	8	pF

HP4285A LCR Meter

Table 6. Dynamic ICC, 25C

Frequency	(FAB-2)		(FAB-1)		Units
	Vcc=2.7V	Vcc=3.3V	Vcc=2.7V	Vcc=3.3V	
1MHZ	0.040	0.057	0.038	0.054	mA
5MHZ	0.199	0.283	0.191	0.267	mA
10MHZ	0.398	0.565	0.380	0.536	mA
20MHZ	0.792	1.125	0.762	1.066	mA