



January 14, 2005

PCN number: 0407

PCN change level: Major

### **Change to the maximum standby current for Axcelerator FPGAs**

Dear Customer,

The purpose of this notification is to communicate a change in the specification of the maximum 'worst case' standby current (Icca) for the Axcelerator family of FPGAs. This change impacts all Axcelerator devices (shown below).

Device	Speed Grade	Package	Temp
AX125	Std, 1, 2	CS180, FG256, FG324	C, I
AX250	Std, 1, 2	FG256, FG484, PQ208, CQ208, CQ352	C, I, M, B
AX500	Std, 1, 2	FG484, FG676, PQ208, CQ208, CQ352	C, I, M, B
AX1000	Std, 1, 2	FG484, FG676, BG729, FG896, CQ352, CG624	C, I, M, B
AX2000	Std, 1, 2	FG896, FG1152, CQ352, CG624	C, I, M, B

Please review the following detail information contained in this PCN. If there are issues or you wish to reject this PCN please submit your response, to the email provided below within 30 days of the date on this notice. No response is required from your company if this change is acceptable. Actel will implement the change 90 days after the date on this notice.

Initially, Actel specified in the Axcelerator Datasheet (version 2.3 and earlier) that the maximum standby current (Icca) for the FPGA core at the following levels.

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## Current Datasheet

### Calculating Power Dissipation

Table 2-3 • Standby Current

Device	Temperature	I <sub>CCA</sub>	I <sub>CCDA</sub>	I <sub>CCBANK</sub>		I <sub>CCPLL</sub>	I <sub>CCCP</sub>		Units
		Standby Current (Core)	Standby Current, Differential I/O	Standby Current per I/O Bank		Standby Current per PLL	Standby Current, Charge Pump		
				2.5V V <sub>CCI</sub>	3.3V V <sub>CCI</sub>		Active	Bypassed mode	
AX125	Typical at 25°C	1.5	1.5	0.2	0.3	0.2	0.3	0.01	mA
	70°C	10	6	0.5	0.75	1	0.4	0.01	mA
	85°C	15	6	0.6	0.8	1	0.4	0.2	mA
	125°C	40	8	1	1.5	2	0.4	0.5	mA
AX250	Typical at 25°C	1.5	1.4	0.25	0.4	0.2	0.3	0.01	mA
	70°C	15	7	0.8	0.9	1	0.4	0.01	mA
	85°C	25	7	0.8	1	1	0.4	0.2	mA
	125°C	55	9	1.3	1.8	2	0.4	0.5	mA
AX500	Typical at 25°C	5	1.4	0.4	0.75	0.2	0.3	0.01	mA
	70°C	20	7	1	1.5	1	0.4	0.01	mA
	85°C	40	7	1	1.9	1	0.4	0.2	mA
	125°C	75	9	1.75	2.5	1.5	0.4	0.5	mA
AX1000	Typical at 25°C	7.5	1.5	0.5	1.25	0.2	0.3	0.01	mA
	70°C	40	8	1.5	3	1	0.4	0.01	mA
	85°C	85	8	1.5	3.4	1	0.4	0.2	mA
	125°C	150	10	3	4	1.5	0.4	0.5	mA
AX2000	Typical at 25°C	20	1.6	0.7	1.5	0.2	0.3	0.01	mA
	70°C	80	10	2	7	1	0.4	0.01	mA
	85°C	150	10	3	8	1	0.4	0.2	mA
	125°C	300	15	4	10	1.5	0.4	0.5	mA

**Note:**  $I_{CCCP}$  Active is the  $I_{CCDA}$  or the Internal Charge Pump current.  $I_{CCCP}$  Bypassed mode is the External Charge Pump current  $I_{IH}$  ( $V_{PUMP}$  pin).

Based on additional characterization data, Actel has changed the  $I_{CCA}$  levels. There is no change in the functionality of the silicon. The new updated limits are as follows:

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## Revised Datasheet

### Calculating Power Dissipation

Table 2-3 • Standby Current

Device	Temperature	I <sub>CCA</sub>	I <sub>CCDA</sub>	I <sub>CCBANK</sub>		I <sub>CCPLL</sub>	I <sub>CCCP</sub>		Units
		Standby Current (Core)	Standby Current, Differential I/O	Standby Current per I/O Bank		Standby Current per PLL	Standby Current, Charge Pump		
				2.5V V <sub>CCI</sub>	3.3V V <sub>CCI</sub>		Active	Bypassed mode	
AX125	Typical at 25°C	1.5	1.5	0.2	0.3	0.2	0.3	0.01	mA
	70°C	15	6	0.5	0.75	1	0.4	0.01	mA
	85°C	25	6	0.6	0.8	1	0.4	0.2	mA
	125°C	50	8	1	1.5	2	0.4	0.5	mA
AX250	Typical at 25°C	1.5	1.4	0.25	0.4	0.2	0.3	0.01	mA
	70°C	30	7	0.8	0.9	1	0.4	0.01	mA
	85°C	40	7	0.8	1	1	0.4	0.2	mA
	125°C	70	9	1.3	1.8	2	0.4	0.5	mA
AX500	Typical at 25°C	5	1.4	0.4	0.75	0.2	0.3	0.01	mA
	70°C	60	7	1	1.5	1	0.4	0.01	mA
	85°C	80	7	1	1.9	1	0.4	0.2	mA
	125°C	180	9	1.75	2.5	1.5	0.4	0.5	mA
AX1000	Typical at 25°C	7.5	1.5	0.5	1.25	0.2	0.3	0.01	mA
	70°C	80	8	1.5	3	1	0.4	0.01	mA
	85°C	120	8	1.5	3.4	1	0.4	0.2	mA
	125°C	200	10	3	4	1.5	0.4	0.5	mA
AX2000	Typical at 25°C	20	1.6	0.7	1.5	0.2	0.3	0.01	mA
	70°C	160	10	2	7	1	0.4	0.01	mA
	85°C	200	10	3	8	1	0.4	0.2	mA
	125°C	500	15	4	10	1.5	0.4	0.5	mA

**Note:**  $I_{CCCP}$  Active is the  $I_{CCDA}$  or the Internal Charge Pump current.  $I_{CCCP}$  Bypassed mode is the External Charge Pump current  $I_{IH}$  ( $V_{PUMP}$  pin).

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Axcelerator devices with the higher lcca maximum rating will have an "X140" marking added for 90 days following this PCN. Existing Axcelerator customers are being notified in writing and asked to acknowledge acceptance of this change. Following this 90 day period, no special designator will be used for any Axcelerator product.

If there are any questions please contact Actel's technical support hotline at [tech@actel.com](mailto:tech@actel.com).

Regards,  
Actel

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