4.3.6 EMI/RFI and Transient Suppression

It is the responsibility of the user to provide surge protection on the input power lines. This is especially important if the power supply wires will be subject to EMI/RFI or ESD.

4.4 Externally Available Voltages

The Bitsy board generates voltages for the processor and other on-board logic. Some of these power sources can be used to power external circuitry. The amount of current that is available for external use depends on many factors, including LCD selection, board part stuffing, and input voltage. Please discuss these applications with ADS. The externally available voltages are listed as follows:

Voltage	Maximum Output Current	Connector
VCC (+5V)	TBD	J9, pin 15
+3.3V	TBD	J9, pin 23 and J10, pin 47

4.5 Power Consumption

The amount of power a Bitsy system consumes depends on peripheral electrical connections, devices populated and the LCD panel connected. Input voltage, temperature and the level of processor activity affect power consumption to a lesser extent.

The following measurements were made using fully populated Bitsy production systems. The systems were running Windows CE under the following conditions:

1. Fully populated Bitsy with no peripheral connections. System running only the Windows CE desktop (predominantly in Idle mode)
2. Configured as in # 1 with a 5V Sharp LQ64D343 VGA TFT display connected.
3. Configured as in #2 and running Polygons.exe (demonstrates effect of CPU activity).
4. Same systems in low-power Sleep mode. Measurements taken with 64MB DRAM; lesser amounts of DRAM require less Sleep current.

Test Condition	J6 Input Voltage					
	6V		9V		12V	
1. Bare board	490 mA	3.0 W	330 mA	3.0 W	240 mA	2.9 W
2. add display	720 mA	4.3 W	470 mA	4.2 W	350 mA	4.2 W
3. CPU activity	760 mA	4.6 W	500 mA	4.5 W	370 mA	4.4 W
4. Sleep	<4 mA	<24 mW	<4 mA	<36 mW	<4 mA	<48 mW

Note that the efficiency of the primary power supply improves for higher input voltages. Sleep current is managed by a linear regulator, so efficiency decreases with higher sleep voltages.

4.6 Power Management

The SA1110 supports three operational modes: RUN, IDLE, and SLEEP. RUN mode offers the greatest performance at the highest cost in power consumption. IDLE mode defines operation with reduced power consumption from RUN mode while offering a shorted transition time to RUN than from SLEEP. In IDLE mode, the StrongARM continues to run, while unused peripherals are disabled. SLEEP mode offers the greatest reduction of operating current. When the Bitsy is in SLEEP mode the switching regulator is disabled, and the system data will be maintained by a low current draw on the DC_IN or VBATT_POS pins. When power is not present on either of those two pins, the system contents will not be maintained unless power is