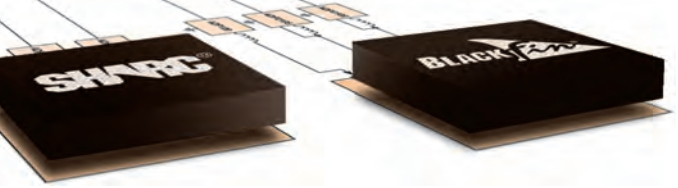


Companion Power Selection Guide: Blackfin and SHARC Processors

ADI power management products provide optimized power for Blackfin® and SHARC® products—whether it's a single processor or multiple processors, in handheld or high power applications, ADI has a solution to meet your needs.

How To Use This Guide

Determine the peak current requirement for each rail of your processor by referring to the relevant data sheets and engineer-to-engineer notes. Then, use this companion guide to select a power solution that offers the required V_{OUT} for that rail.

The ADIsimPower™ design tool offers a complete set of features to create a complete BOM for all of these solutions. Visit *analog.com/ADIsimPower*.

	Linear Regulators										Switching Regulators								SC[1]	
Part Number	ADP121	ADP170	ADP220	ADP1706	ADP1707	ADP1715	ADP1720	ADP1740 ADP1741	ADP1752 ADP1753	ADP1754 ADP1755	ADP2102	ADP2105	ADP2106	ADP2107	ADP2108	ADP2114	ADP2504	ADP5020	ADP1829	ADP1864
V_{IN} (V)	2.5–5.5	1.6–3.6	2.5–5.5	2.5–5.5	2.5–5.5	2.5–5.5	4.0–28	1.6–3.6	1.6–3.6	1.6–3.6	2.7–5.5	2.7–5.5	2.7–5.5	2.7–5.5	2.3–5.5	2.7–5.5	2.3–5.5	2.4–5.5	3.0–18	3.15–14
V_{OUT} (V)	1.2–3.3	0.8–3.0	0.8–2.8	0.75–3.3, soft start	0.75–3.3, with tracking	0.8–5.0	1.225–5.0	0.75–3.0	0.75–2.5	0.75–2.5	0.8–1.875	1.2–3.3	1.2–3.3	1.2–3.3	1–3.3	0.8–3.3	2.8–5.0	N/A	N/A	N/A
I_{OUT} Max (A)	150 mA	300 mA	2 outputs: 200 mA, 200 mA	1	1	500 mA	50 mA	2	800 mA	1.2	600 mA	1	1.5	2	600 mA	2/2, 1/3, or 4 single	1	3 outputs: 250 mA, 600 mA, 150 mA	20	5
Blackfin Processors	**Speed (MHz)**	**Min Voltage (V)**	**Max Voltage (V)**	**Max IDD_{INT} (mA)**																
VDD_{INT} Domain																				
ADSP-BF51x	All	1.083	1.47	225		•				•								•		
ADSP-BF522/ADSP-BF524/ADSP-BF526	All	1.083	1.47	250		•				•								•		
ADSP-BF523/ADSP-BF525/ADSP-BF527	All	0.95	1.26	500				•	•	•			•	•		•		•		
ADSP-BF531/ADSP-BF532/ADSP-BF533	400	0.8	1.32	350						•			•	•				•		
ADSP-BF533	500, 533, 600	0.8	1.45	900				•	•											
ADSP-BF534/ADSP-BF536	300, 400	0.8	1.32	400						•			•	•				•		
ADSP-BF534/ADSP-BF536/ADSP-BF537	500, 533, 600	0.8	1.43	900				•	•							•				
ADSP-BF538/ADSP-BF539	400, 533	0.8	1.375	850				•	•							•				
ADSP-BF54x	400	0.9	1.43	750				•	•							•				
ADSP-BF54x	533, 600	0.9	1.43	1350												•				
ADSP-BF561	All	0.8	1.42	1600												•				
Other Domains[2]	**Min Voltage (V)**	**Nominal Voltages (V)**	**Max Voltage (V)**	**Max Current (mA)**																
VDD_{EXT}	1.7	1.8, 2.5, 3.3	3.6	NA	•			•	•	•			•	•	•	•	•	•		
VDD_{MEM}	1.7	1.8, 2.5, 3.3	3.6	NA	•			•	•	•	•		•	•	•	•	•	•		
VDD_{DDR}	2.5	2.6	2.7	NA	•	•	•	•	•	•		•	•	•	•	•	•	•		
VDD_{USB}	3	3.3	3.6	30	•			•	•	•	•		•	•	•	•	•	•		
VDD_{OTP}	2.25	2.5	2.75	25	•	•	•	•	•	•	•	•	•		•	•	•	•		

SHARC Processors	**Speed (MHz)**	**Min Voltage (V)**	**Max Voltage (V)**	**Typical IDD_{INT} (mA)**	**Max IDD_{INT} (mA)**															
VDD_{INT} Domain																				
ADSP-21261/ADSP-21262/ADSP-21266	150	1.14	1.26	<500	1260							•			•	•		•				
	200	1.14	1.26	500	1260							•			•	•		•				
ADSP-21362/ADSP-21363/ADSP-21364/ ADSP-21365/ADSP-21366	200	0.95	1.05	<800	1150							•		•	•	•		•				
	333	1.14	1.26	<800	1150							•		•	•	•		•				
ADSP-21367/ADSP-21368/ADSP-21369	266	1.14	1.26	700	1600							•				•		•				
	333	1.14	1.35	900	3025											•		•			•	•
	350	1.14	1.365	1050	1900							•			•	•		•				
	400	1.14	1.35	1100	3100											•		•			•	•
ADSP-21371/ADSP-21375	266	1.14	1.26	600	1200							•			•	•		•				
Other Domains[2]	**Nominal Values (V)**		**Max Current (mA)**																	
VDD_{EXT}	3.3		—			•		•	•	•	•	•			•	•	•	•	•	•	•	•
VDD_PLL/ANALOG	1.2		10				•													

[1]SC = switching controllers

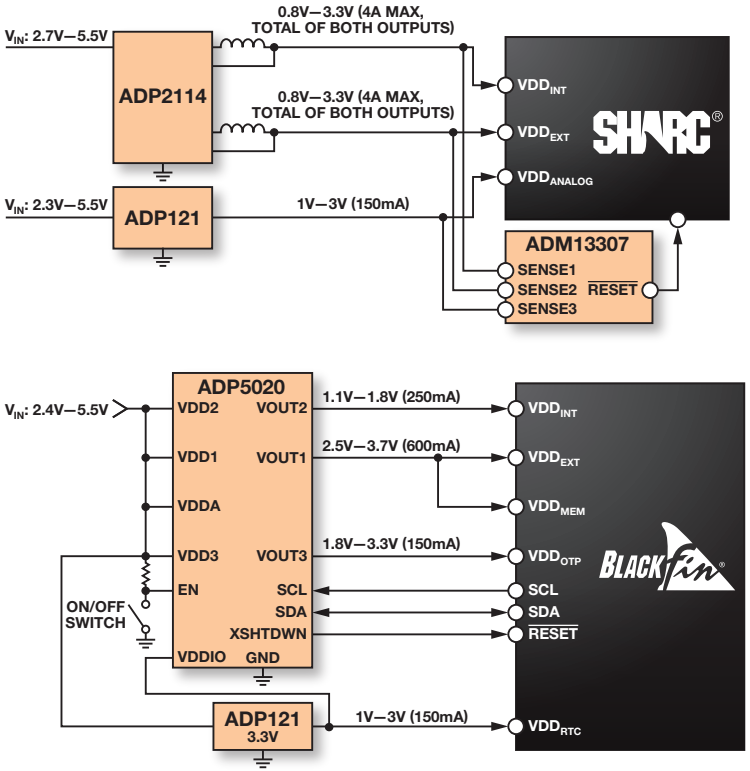
[2]Refer to the relevant data sheet and engineer-to-engineer note to determine the exact "other domain" requirements of each individual processor.

Many applications power more than one device or domain using a single regulator. Compute and add the maximum current draw for each device and domain in a particular application before choosing a regulator.

The regulators marked in this guide support the current draw at the maximum specified frequency, voltage, and industrial temperature. Regulators not marked as compatible with a particular processor may still be appropriate depending on the frequency, voltage, temperature, and application code used.

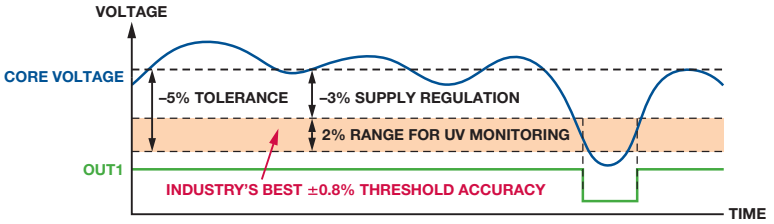
ANALOG DEVICES

Example* Power Solutions for SHARC and Blackfin Processors



*Numerous variables affect the power requirements of an embedded system. Ambient temperature, core and system frequency, supply voltages, pin capacitances, power modes, application code, and peripheral utilization all contribute to the average power requirements; therefore, these are just two suggested solutions.

High Accuracy Is Critical When Monitoring Low Voltages



Analog Devices has an extensive portfolio of supervisory products, offering industry-leading threshold accuracy, suited to monitoring the multiple supplies commonly needed to power DSP and FPGA applications. There are several device families offering a combination of pretrimmed threshold and user adjustable inputs, with some including a watchdog timer function.

Supervisory Devices Power Companion

Number of Monitored Rails	ADI Part Number	Pretrimmed Threshold Accuracy[1]	Adjustable Threshold Accuracy[1]
Single[2]	ADM6319	±2.5%	—
	ADM6384	±2.5%	—
	ADM803	±2.7%	—
Dual	ADM13305	±2.7%	±0.80%
Triple	ADM13307	±2.7%	±0.80%
Quad	ADM1184	—	±0.80%
	ADM6710	±2.8%	±1.50%

[1]Over temperature.

[2]This is just a sample selection of single-channel supervisory devices that are available. For further information visit *analog.com/supervisory*.

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