

Power Manager II & ispClock Applications

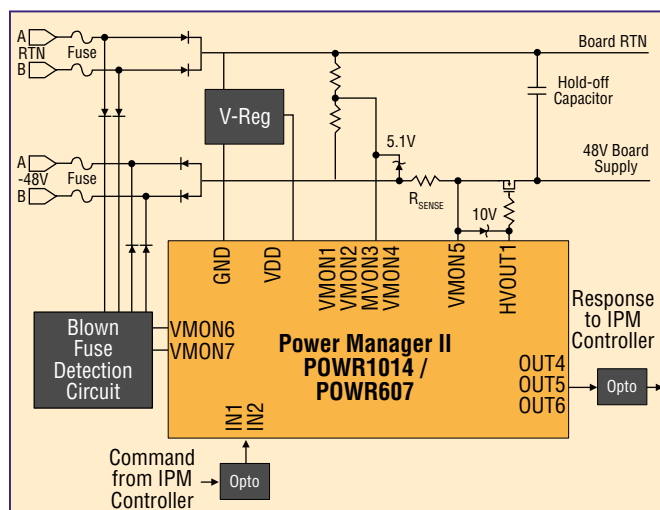
Power Manager and ispClock™ are two In-System Programmable mixed signal product families from Lattice Semiconductor. Each of these devices provide cost effective, standardized solutions across a wide range of applications which traditionally require

multiple ICs and discrete components. The following table outlines some of these applications and their corresponding circuit diagrams and advantages.

Power Manager II & ispClock Example Applications by Type of System

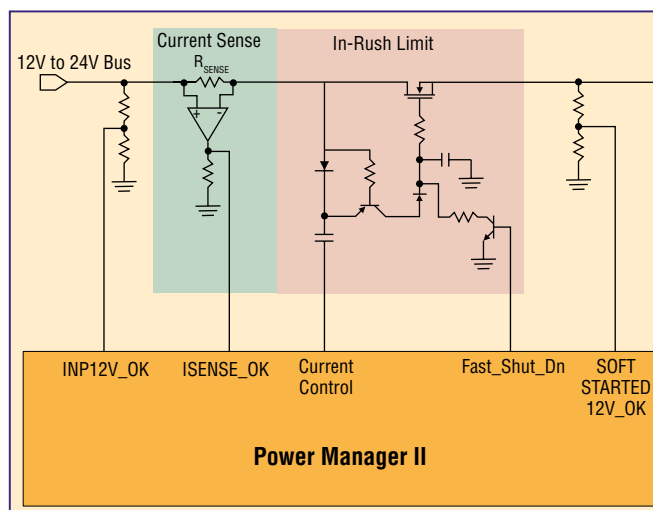
Type of System: Chassis			
Socket #	Device	Function	See Application #
1	Power1014 or Power607	Hot-swap Controller ($\pm 48V$, +24V, +12V)	1, 2
2	Power1014/A	On-board CPU Reset Generation, Power Supply OV/UV Supervision, Power Supply Sequencing, Watchdog Timer, Soft Start	3
3	Power6AT6	Reduce the Cost of Power Supplies with Increased Accuracy + Power Supply Margining	4
4	Power1220AT8	Power1014 Application + Power6AT6 Apps	2, 3, 4
5	ispClock5312S/08S/04S/16S/20S	CPU Clock Distribution Zero Delay Buffer, Fan-out Buffer, Multi-Voltage Logic Interface	5, 6
6	ispClock5620A/10A	Multiple Clock Frequency Generation, Differential/Single-Ended Clock Distribution	7
7	ispClock56XXA or 53XXS	Backplane Clock Interface	8
Type of System: Pizza Box Form Factor / Single Board System			
Socket #	Device	Function	See Application #
1	Power1014/A	On-board CPU Reset Generation, Power Supply OV/UV Supervision, Power Supply Sequencing, Watchdog Timer, Soft Start	3
2	Power6AT6	Reduce the Cost of Power Supplies with Increased Accuracy + Power Supply Margining	4
3	Power1220AT8	Power1014 Application+Power6AT6 Apps	2, 3, 4
4	ispClock5312S/08S/04S/16S/20S	CPU Clock Distribution Zero Delay Buffer, Fan-out Buffer, Multi-Voltage Logic Interface	5, 6
5	ispClock5620A/10A	Multiple Clock Frequency Generation, Differential/Single-Ended Clock Distribution	7
Type of System: Low Cost Customer Premises Equipment (e.g. Set Top Box)			
Socket #	Device	Function	See Application #
1	Power607	On-board CPU Reset Generation, Power Supply OV/UV Supervision, Watchdog Timer, LED Display Driver	3
2	ispClock5312S/08S/04S	CPU Clock Distribution Zero Delay Buffer, Fan-out Buffer, Multi-Voltage Logic Interface	5, 6
Type of System: PC Add-on Card (e.g. PCIe)			
Socket #	Device	Function	See Application #
1	Power1014/A	Soft-start with Current limiting, Power Supply Sequencing, Control Signal Interface (Pulse Stretching, etc.)	2, 3
2	ispClock5312S/08S/04S	CPU Clock Distribution Zero Delay Buffer, Fan-out Buffer, Multi-Voltage Logic Interface	5, 6

Application #1: $\pm 48V$ Power1014 Intelligent Hot Swap Controller



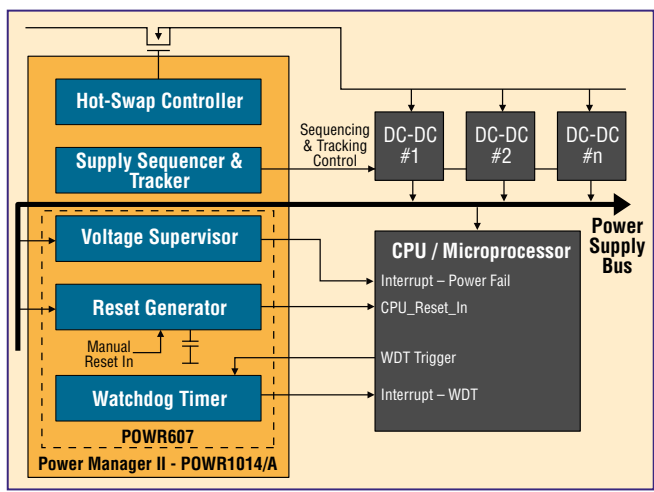
Advantages: Low Cost, Programmable Hold-off, Recycle Timing, MOSFET Operates in SOA, Early Fault Detection

Application #2: +12V to 24V Programmable In-Rush Current Limit



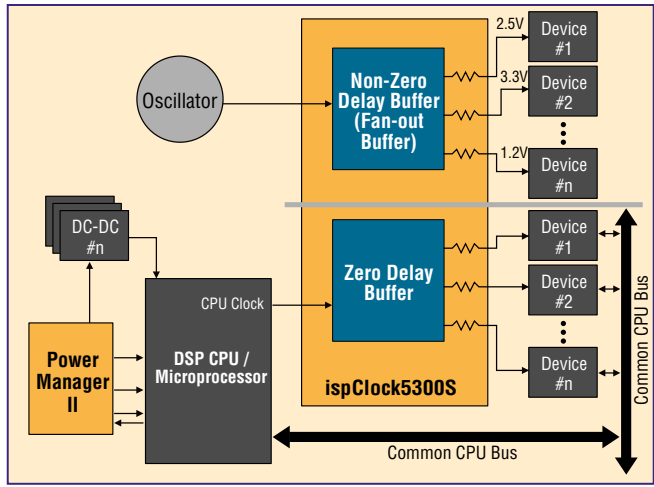
Advantages: Low Cost, Programmable Current Limit Startup/Operating, Can be Easily Integrated into Board Power Management Scheme

Application #3: Power1014/A Standard μ P / DSP Support IC



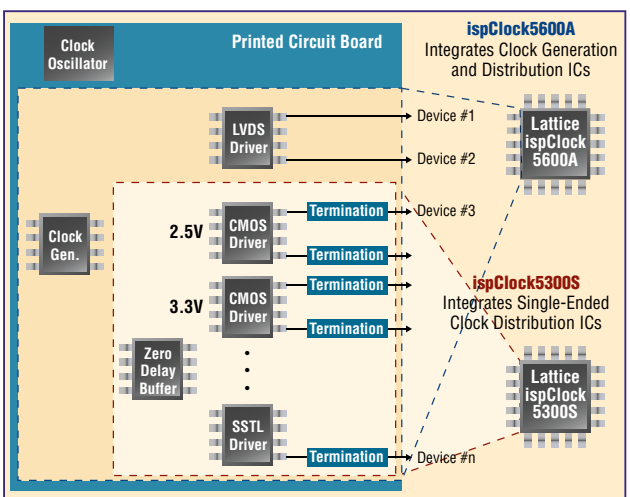
Advantages: Low Cost, Integration, Standardized Solution

Application #5: ispClock Standard μ P / DSP Clock Distribution IC



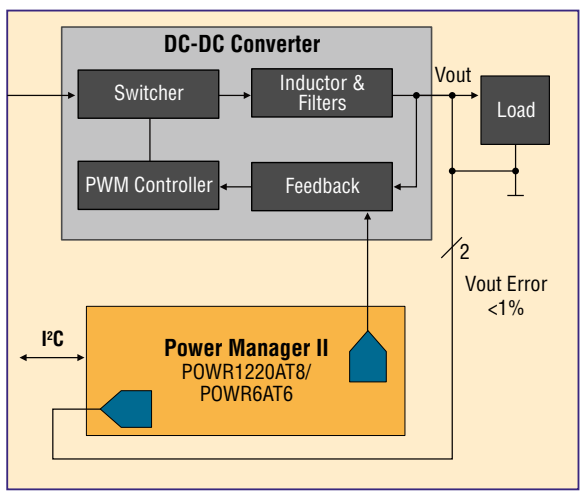
Advantages: Integrates ZDB, FOB, Programmable Skew and Termination, Multi-Voltage Logic Interface

Application #7: ispClock – PLD for Clocking Networks



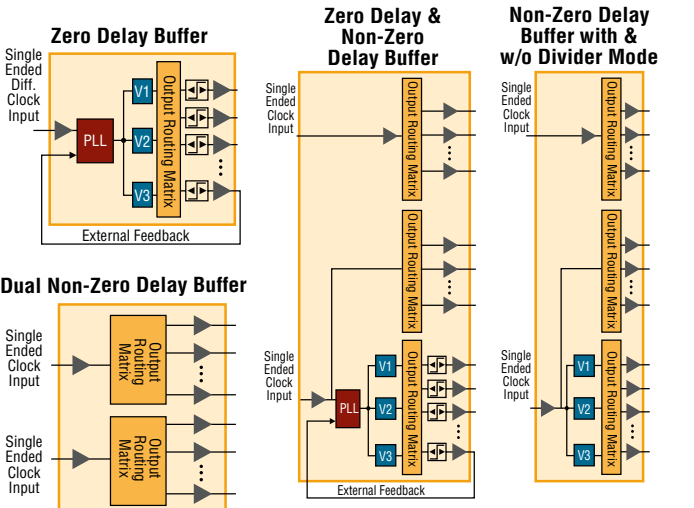
Advantages: ispClock – Integrates Clock Generation, Single-Ended & Differential Clock Buffers, Programmable Skew & Termination

Application #4: Power Manager Improves Accuracy of DC-DC Converters



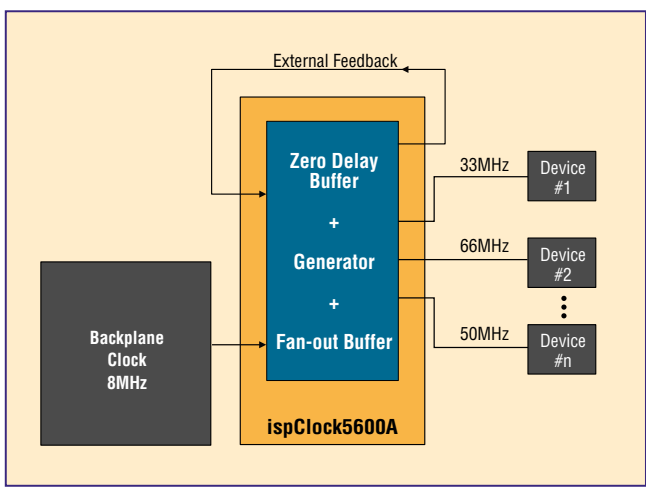
Advantages: Convert Any DC-DC Converter to Accurate, Digitally Controlled Supply

Application #6: ispClock 5300S – Four Modes of Operation



Advantages: Standardize on ispClock5300S Instead of Multiple FOB and ZDB

Application #8: ispClock – Synchronizing with Backplane Clocks



Advantages: Generate & Distribute Multiple Clocks Synchronized with the Backplane Clock