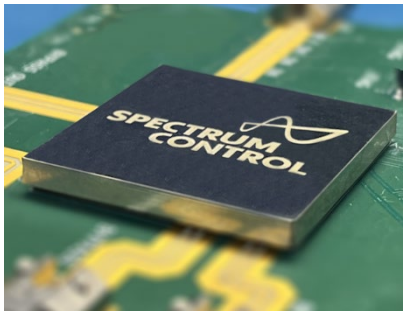
PRODUCT BRIEF

High Frequency Direct Sampling Clock Source RF+™ System-in-Package

SCRS-00-1004

New RF+ SiP provides mmWave clock generation and clock management for high-speed direct sampling architectures in a high-volume, plug-and-play, surface mount package

Spectrum Control is redefining how developers design and build modern RF and digital systems with fully embedded, system-ready solutions. Miniature & integrated, software-instrumented, with dramatically reduced cost and development time and no performance trade-offs



The Smarter Way to Build RF+Digital Systems

Our RF+ SiPs offer a complete platform for mixed signal integration in small surface-mount packages: high fidelity signal conditioning, power supply & distribution, and digital tuning, command & control.

- Miniaturization and integration of system functions saves valuable board space without compromising performance
- Pre-engineered system blocks significantly reduce engineering time
- Volume-ready surface mount solutions simplify manufacturing
- Applications include wireless comms, test & measurement, and aerospace & defense.

These compact SiPs to help you minimize space and maximize performance. Whether you are working with 3UVPX, VNX or custom form factors our SiPs help densify your designs.

- Simplified design and rapid development
- Software-instrumented for tuning and control
- Unified power regulation, power conversion, and power routing
- Streamlined component sourcing
- mmWave clock generation for high-speed direct sampling architectures (64 GSPS)
  - Low additive phase noise 32 GHz clock generation
  - Quad output CLKEXT differential clocks (at 32GHz)
  - Proprietary balun/filter
  - Includes TI LMX1204 JESD buffer/multiplier/divider
- Integrated Power supply generated from external +9VDC and +3.3VDC
- Integrated digital gateway with customizable parallel or serial interface to control and provide status of
  - Digital Attenuator
  - LMX1204 Serial Control Access
    - Selectable CKREF Signal Types (e.g. LVPECL)
    - Level Control
    - Divide/Multiply Ratios
  - Regulators (ON/OFF for power saving)
  - Temperature
- On board memory to allow calibration for optimum performance over wide temperature ranges
- Designed for high volume production and optimized to minimize supply chain risk
- US-manufactured and sourced
- Custom configurations available

RF+Digital™

Approved for Release: June 2025

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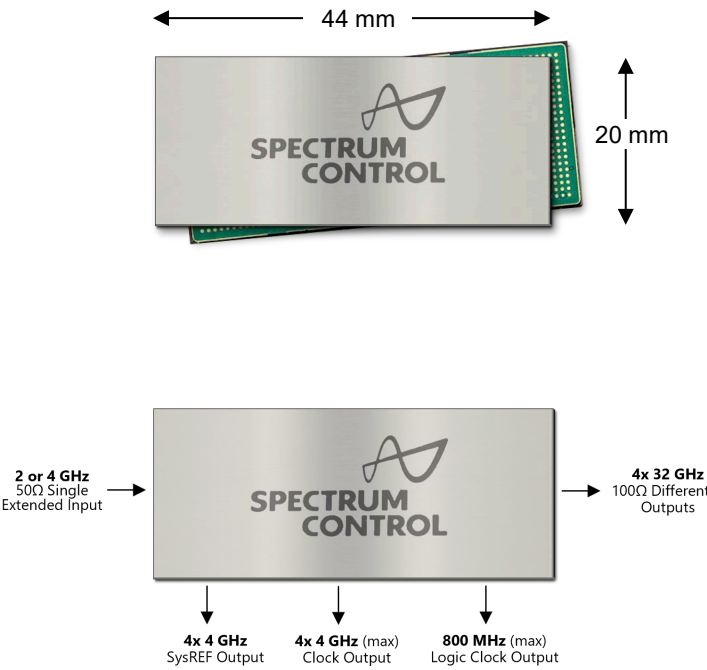
Specifications

SCRS-00-1004

Description	Specification	Units
Input		
Input Freq	2 or 4	GHz
Input Power	-2 to +10	dBm
CLKEXT Output		
Output Freq (100Ω Diff, 64GSPS)	32	GHz
Output Power Nominal	+12 ± 2	dBm
Adjustable Output Power Range (Digitally Controlled, 0.5 dB Steps)	15.5	dB
Spurious	70	dBc
Phase Noise – 100 Hz Offset	-120.0	dBc/Hz
Phase Noise – 1 kHz Offset	-129.9	dBc/Hz
Phase Noise – 10 kHz Offset	-138.6	dBc/Hz
Phase Noise – 100 kHz Offset	-143.3	dBc/Hz
Phase Noise – 1 MHz Offset	-144.2	dBc/Hz
Phase Noise – 10 MHz Offset	-144.2	dBc/Hz
CLKREF		
Outputs (100Ω Diff, Synchronized)	4	
Output Freq(100Ω Diff, Buffered or Divided)	2 or 4	GHz
Output Power Range	+3 to +7	dBm
Harmonics (including Subs)	30	dBc
SYSREF		
Outputs (100Ω Diff, Synchronized)	4	
Output Power Range	+3 to +7	dBm
Harmonics (including Subs)	30	dBc
DC Power Consumption		
+9VDC All CLKEXT ON	700	mA
+9VDC (1) CLKEXT ON	350	mA
+3.3VDC All SYSREF OUT	1100	mA
+3.3VDC SYSREF & CLKOUT OFF	265	mA
Operating Temperature Range	-40 to +85	°C



SCRS-00-1004 Includes

- LMX1204 JESD Buffer/Multiplier/Divider
- Intel FPGA integrated
- 9 Voltage Regulators
- 1 Digital Attenuator
- 4 Integrated RF Filters + Baluns

Available Part Numbers

Part Number	Description
SCRS-00-1004	High Frequency Direct Sampling Clock Source
SCRS-00-1001	2-Channel mmWave Block DownConverter (Ch1: 18-26 GHz, CH2: 26-40 GHz)
SCRS-00-1002	X-Band Transceiver Front End
SCRS-00-1003	2-Channel mmWave Block UpConverter (Ch1:18-26 GHz, CH2: 26-40 GHz)
SCRS-00-XXXX	Custom solutions include Wideband RF Front End, X-Band RF Front End, Switched Filter Banks, Frequency Converters, Power Amplifiers, or your custom IMA

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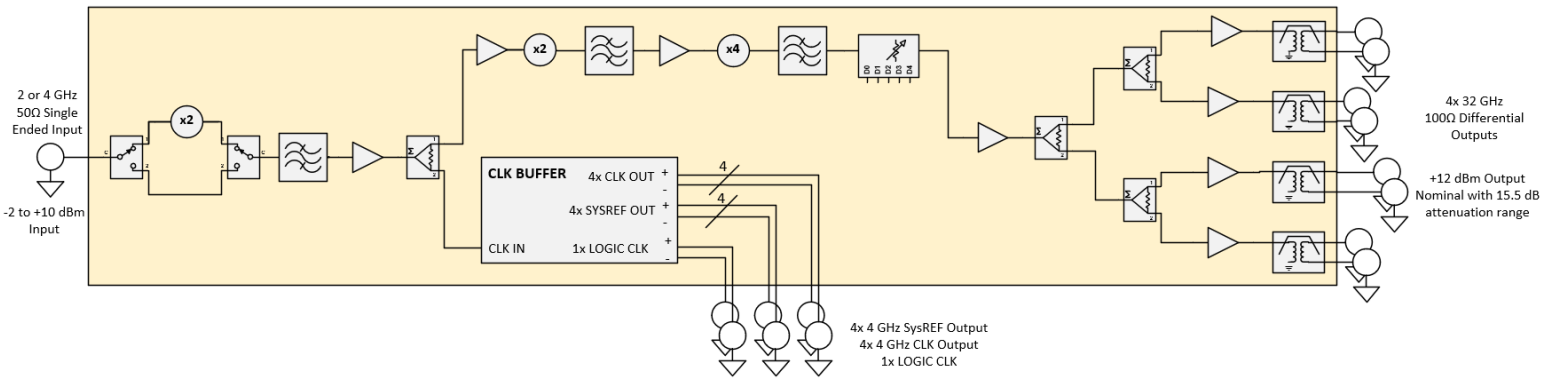
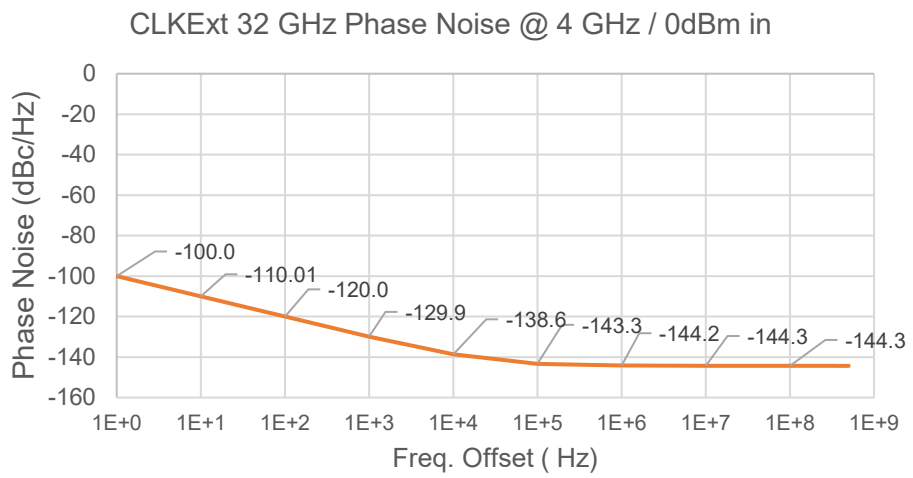
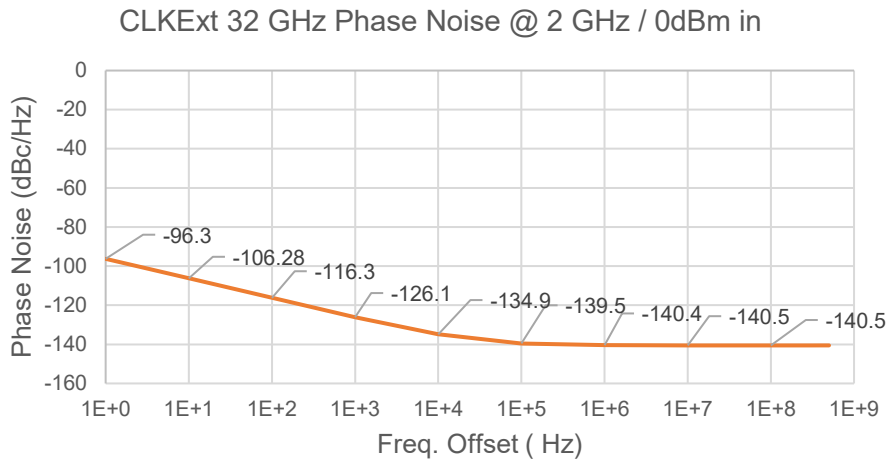
Block Diagram

SCRS-00-1004



Additive Phase Noise Performance





Connect with our experts

Find out more about SCi Blocks products and solutions and talk to us about your project requirements including custom SiPs. Ask about our virtual demos and evaluation hardware and get full datasheet including test data, and integration information.

Visit **spectrumcontrol.com/sci-blocks** or email us: sciblocks@am.spectrumcontrol.com

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