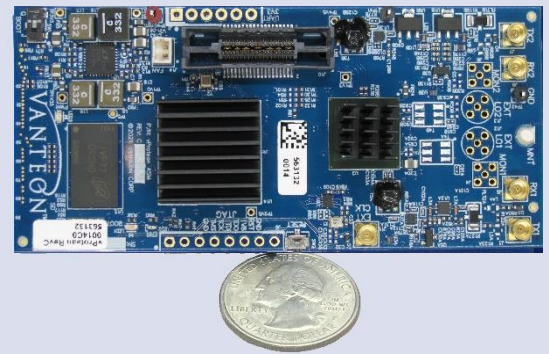## PRODUCTS

vProtean™

Ultra-Flexible Software-Defined Radio (SDR)

The vProtean™ SDR is the ultra-flexible SDR with fantastic narrowband performance, in a highly integrated and fully programmable radio platform.

vProtean™ is the flexible Wideband SDR for signal intelligence and multi-band processing applications. Its configurable, high performance, RF front end is frequency and bandwidth configurable, while its integrated RF transceiver provides optimal narrowband performance.
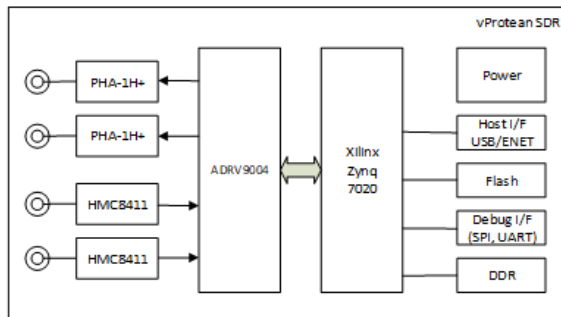
Performance Specifications

- Configurable RF front end with 20 dBm transmit power
- Frequency range of 30 to 6000 MHz
- Instantaneous bandwidth from 12 kHz to 40 MHz
- Low power consumption
- 2 TX and 2 RX operation
- Small footprint (9.0 cm x 4.2 cm)
- USB and Ethernet host interface pins accessible
- On-board 512 Mb Flash
- On-board 4 Gb DDR3 SDRAM
- UART and SPI debug ports

Accelerate Your Design

Let Vanteon's engineering team help you get your products to market faster with a proven, scalable SDR design.

Call us at 888.506.5677 or email sales@vanteon.com

Platform Features

The vProtean+™ platform offers the following key features:

- Xilinx Zynq-7045 FPGA for high performance signal processing
- Dual Embedded ARM Cortex A9 processors in the Zynq core
- ADI ADRV9004 highly integrated, wide frequency range RF transceiver
- Performance enhancing RF Front End (RFFE) to improve on the transceiver FE
- Capable of Multi-Chip Synchronization

Licensable Software

Licensable software available with Services Contract:

- DSP module library of target-agnostic C/C++ , VHDL, and MATLAB/Simulink® DSP core radio functions
  - Modulation/demodulation (ASK/AM, FSK/FM, PSK/PM, QAM, OFDM)
  - Digital up/down conversion
  - Carrier recovery/tracking
  - Filters (FIR, IIR, multi-rate, adaptive)
  - Automatic gain control
  - Channel coding
  - Multichannel capabilities
  - FEC encoding/decoding
  - Spread spectrum coding
  - Customizable MAC

Table 1 : ABSOLUTE MAXIMUM RATINGS

	CONDITION	UNITS	MIN	TYPICAL	MAX
VCC		V	3.6		5.5
RF INPUT POWER	ADRV9004 input attenuation set to 0 dB	dBm			-3
COMPONENT TEMPERATURE RATING	Industrial grade version available upon request	°C	0		85

Table 2 : DC RECOMMENDED OPERATING CONDITIONS & CHARACTERISTICS

	DESCRIPTION	UNITS	MIN	TYPICAL	MAX
VCC_SYS	Relative to PCB Ground	V		5	
CURRENT CONSUMPTION ICC_SYS	Standby, Vcc = 5V TX & RX off	A		0.83	
	Vcc = 5V 2 RX on, all TX off	A		1.1	
	Vcc = 5V 2 RX on & 2 TX on	A		1.7	

Table 3 : RF PERFORMANCE SPECIFICATIONS

Electrical characteristics are at the ambient temperature range and VCC_SYS voltage of 5 V unless otherwise noted.

	DESCRIPTION	UNITS	MIN	TYPICAL	MAX
FREQUENCY RANGE	Operational Frequency Range	MHz	30		6000
SAMPLE RATE	Sample Rate of RX ADC and TX DAC	Msps			61.44
RECEIVE INSTANTANEOUS BANDWIDTH	3 dB bandwidth, 61.44MHz sample rate	MHz		37.25	
RF INPUT POWER	ADRV9004 input attenuation set to 0 dB	dBm		-19	
RECEIVE SPURIOUS FREE DYNAMIC RANGE	Frequency: 2400 MHz	dB		80	
RECEIVE BAND FLATNESS	30 MHz to 3500 MHz	dB		±2.25	
	30 MHz to 6000 MHz	dB		±4.25	
RECEIVE CHANNEL ISOLATION	RX1 to RX2 measured at 2400 MHz	dB		74	
RECEIVE FRONT END NOISE FIGURE		dB		2.1	
TRANSMIT PHASE NOISE	Frequency: 2400 MHz @ 100 kHz offset	dBc/Hz		-104	
	Frequency: 2400 MHz @ 1 MHz offset			-121	
	Frequency: 2400 MHz @ 10 MHz offset			-138	
TRANSMIT POWER	P1dB @ 2400 MHz	dBm		19	
TRANSMIT CHANNEL ISOLATION	TX1 to TX2 measured at 2400 MHz	dB		70	
TRANSMIT BAND FLATNESS	30 MHz to 3500 MHz	dB		±5.5	
	30 MHz to 6000 MHz	dB		±11.75	

Note: Specifications are subject to change without notice.

Table 4 : BOARD CONNECTORS

CONNECTOR ID	DESCRIPTION
J1	UART Interface Connector
J2	Board-to-Board Connector
J3	RF Transmit Output 1
J4	RF Transmit Monitor Input
J5	RF Receive Input 1
J6	JTAG Interface Connector
J7	RF Transmit Output 2
J8	RF Transmit Monitor Input
J9	RF Receive Input 2
J10	Logic Analyzer Connector
J11	Differential External System Clock Input
J12	External Local Oscillator Input
J13	External Local Oscillator Input
J14	Fan Power

Table 5 : SAFETY STANDARDS CERTIFICATIONS

STANDARDS	STATUS
FCC	End Product must be FCC Certified
RoHS	Yes

Note: Specifications are subject to change without notice.