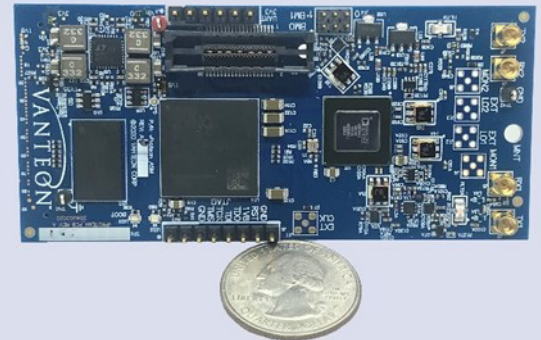


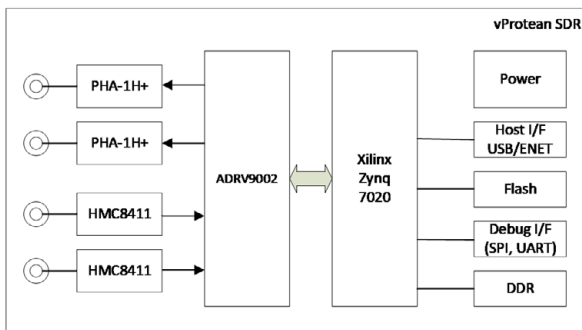
vPROTEAN™

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 TX and 2 RX operation
- Small footprint (9.0 cm x 4.2 cm)
- USB and Ethernet host interface
- On-board 512 Mb Flash
- On-board 4 Gb DDR 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-7020 FPGA for high performance signal processing
- Dual Embedded ARM Cortex A9 processors in the Zynq core
- ADI ADRV9002 highly integrated, wide frequency range RF transceiver
- Performance enhancing RF Front End (RFFE) to improve on the transceiver FE
- Available DSP module library of target-agnostic VHDL, and MATLAB/Simulink® DSP core radio functions:
 - Modulation/demodulation (ASK/AM, FSK/FM, PSK/PM, QAM, OFDM)
 - Digital down/up conversion
 - Symbol timing recovery/tracking
 - Carrier recovery/tracking
 - Filters (FIR, IIR, multi-rate, adaptive)
 - Automatic gain control
 - Channel Coding
 - Multichannel TX/RX capabilities
 - FEC (e.g., convolutional, Reed-Solomon)
 - Spread spectrum coding
 - Customizable MAC

Note: Specifications are subject to change without notice.

Table 1 : ABSOLUTE MAXIMUM RATINGS

	CONDITION	UNITS	MIN	TYPICAL	MAX
VCC		V	3.6	5	5.5
RF INPUT POWER	ADRV9002 input attenuation set to 0 dB and LNA not bypassed	dBm			-3
ANTENNA PORT VSWR					tbd
STORAGE TEMPERATURE RANGE		°C	-30		+100
OPERATION TEMPERATURE RANGE	Ambient, both receivers on, both transmitters on at 5% duty cycle, no forced air	°C	0		tbd
	Ambient, both transmitters and receivers active, 6 CFM forced air	°C	0		tbd
SHOCK		g		tbd	
VIBRATION				tbd	

Table 2 : DC RECOMMENDED OPERATING CONDITIONS & CHARACTERISTICS

	DESCRIPTION	UNITS	MIN	TYPICAL	MAX
VCC_SYS	Relative to PCB Ground	V	3.6	5	5.5
CURRENT CONSUMPTION ICC_SYS	Standby, Vcc= 5 V TX & RX off	A	tbd	0.56	tbd
	Vcc= 5 V 2 RX on, all TX off	A		0.931	tbd
	Vcc= 5 V 2 RX on & 2 TX on	A		1.56	tbd

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
OTA SAMPLE RATE	Sample Rate of ADC	Msp/s			61.44
RECEIVE INSTANTANEOUS BANDWIDTH	3 dB bandwidth	MHz	0.012	37.25	
RF INPUT POWER	ADRV9002 input attenuation set to 0 dB and LNA not bypassed	dBm			-19
RECEIVE SPURIOUS FREE DYNAMIC RANGE	Frequency: 2.4 GHz	dB		84	
RECEIVE BAND FLATNESS	50 MHz to 3500 MHz	dB	-0.2		0.2
	30 MHz to 6000 MHz	dB	-0.2	tbd	4.5
RECEIVE CHANNEL ISOLATION	RX1 to RX2 measured at 2400 MHz	dB	72	tbd	
RECEIVE PHASE NOISE	@ 100 kHz offset	dBc/Hz		-113.7	
	@ 1 MHz offset			-126.7	
	@ 5 MHz offset			-136.7	
TRANSMIT POWER	P1dB (@2400 MHz)	dBm	tbd		19
TRANSMIT CHANNEL ISOLATION	TX1 to TX2 between 900 MHz to 2400 MHz	dB	85		
TRANSMIT BAND FLATNESS	100 MHz to 3500 MHz	dB	-6		6
	100 MHz to 6000 MHz relative to 2 GHz	dB	-11		11

Table 4 : BOARD CONNECTORS

CONNECTOR ID	MNEMONIC	TYPE	DESCRIPTION
J1	UART	Connector	UART Interface Connector
J2		Connector	Board-to-Board Connector
J3	TX1	Output	RF Transmit Output
J4	MON1	Input	RF Transmit Monitor Input
J5	RX1	Input	RF Receive Input
J6	JTAG	Connector	JTAG Interface Connector
J7	TX2	Output	RF Transmit Output
J8	MON2	Input	RF Transmit Monitor Input
J9	RX2	Input	RF Receive Input
J10		Connector	Logic Analyzer Connector (<i>See User Guide for Description</i>)
J11	EXTCLK	Input	Differential External System Clock
J12	EXTLO1	Input	Differential External Local Oscillator
J13	EXTLO2	Input	Differential External Local Oscillator
J14		Jumper	Boot Mode Select

Table 5 : SAFETY STANDARDS CERTIFICATIONS

STANDARDS	STATUS
FCC	End Product must be FCC Certified
RoHS	Yes