Digi XBee Application Note
Migration from 9XCite to XBee-PRO XSC (S3B Hardware)

This guide will assist you with migrating from the 9XCite to the XBee-PRO XSC (S3B Hardware). First it is important to understand the 9XCite is available in 4 variants:

1) 9600 bps Frequency-Hopping Spread Spectrum (FHSS)
2) 9600 bps Single Channel
3) 38400 bps FHSS
4) 38400 bps Single Channel

The XBee-PRO XSC (S3B) is only backward compatible serially and over-the-air with the 9600 bps (FHSS) variant of the 9XCite. The XBee-PRO XSC (S3B) will not communicate with the 9600 Baud Single Channel or 38400 Baud variants of the 9XCite. This guide lists some of the basic hardware and software differences between the RF modules and what you need to consider when migrating from the 9XCite to the XBee-PRO XSC (S3B).

Hardware Considerations

The following chart lists the major hardware differences between the 9XCite and the XBee-PRO XSC (S3B).

Considerations	9XCite	XBee-PRO XSC (S3B)	Comments
Nominal Voltage	2.85 - 5.5 VDC	3.3 VDC	Power supply must be redesigned for 3.3V.
UART	2.85 - 5.5 VDC	3.3 VDC	Other microprocessors interacting with the unit must have voltage conversion or be redesigned to the same voltage level as the XBee.
TX Current Draw	55 mA (@ 2.85V)	215 mA	TX Power output of XSC can be reduced in software for lower current draw.
RX Current Draw	45 mA (@2.85V) 55 mA (@ 5V)	26 mA	Improved
TX Power Output	6 dBm	7 to 24 dBm	TX Power output has increased and defaults to 24 dBm, but is also software adjustable down to 7 dBm.
Sleep Current	20 uA	2.5 uA	Improved
FCC ID	OUR-9XCITE	MCQ-XBPS3B	Customer will need to change the label on the outside of their end product to show the appropriate FCC ID for the S3B.
IC ID	4214A-9XCITE	1846A-XBPS3B	Customer will need to change the label on the outside of their end product to show the appropriate IC ID for the S3B.

Dimensions	Same	Smaller	Redesign is needed to accommodate form factor change. (See pin compatibility chart below)
Pin Connection	Same	Different	Two 10 pin through hole connectors. (See pin compatibility chart below)
RF Connectors	RPSMA, Wire	RPSMA, U.FL, Wire	XSC S3B is also available with the U.FL connector.

Software Considerations

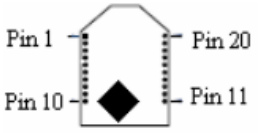
The following chart lists the major software differences between the 9XCite and the XBee-PRO XSC (S3B).

Considerations	9XCite	XBee-PRO XSC (S3B)	Comments
Wake Time	69 ms	40 ms	Improved. Time from pin sleep to when CTS asserts and is ready to transmit data.
Software/AT Commands	Same	Some added	Added commands like power level should be considered. New commands are not required to be used for the interoperability of the radio.
RS-485 Modes	Supported	Supported	The XBee does support RS-485 mode on the RF module, however, the development board does NOT (only USB or RS232).
RF Data Rates	9.6 kbps and 38.4 kbps	9.6 kbps and 19.2 kbps	The XBee is only backward compatible with the 9.6 kbps FHSS variant of the 9XCite.

Pin Compatibility

The XBee-PRO XSC (S3B) has a different footprint than the 9XCite. The S3B has the XBee 20 pin footprint rather than the 11 pins found on the 9XCite. The table below shows the pins on the 9XCite and the corresponding pins on the S3B.

Signal Name	9XCite Module Pins	XBee-PRO XSC (S3B) Module Pins
D02 / CTS / RS-485 Enable	1	12
DI3 / SLEEP	2	9
DO (Data Out)	3	2
DI (Data In)	4	3
DI2 / RTS	5	16
RESET	6	5
DO3 / RX LED	7	4
TX / PWR	8	15
CONFIG	9	6
VCC	10	1
GND	11	10

Pin Layout (Module Footprint) 9XCite (Bottom View) S3B (Top View)		
Dimensions	1.600” x 2.83” x 0.35” (4.06 cm x 7.17 cm x 0.89 cm)	1.297” x 0.962” x 0.215” (3.29 cm x 2.44 cm x 0.546 cm)

Configuration

The XBee-PRO XSC (S3B) doesn’t have Non-AT Settable Parameters like the 9XCite; all of the parameters can be set with AT Commands. Some of the new features on the S3B are:

- MY (Source Address)
- MD (RF Mode)
- PK (RF Packet Size)
- PL (RF Power Level)
- RB (Packetization Threshold)
- RZ (DI Buffer Size)

All of these new features are described in more detail in the XBee-PRO XSC product manual.