



## Product Change Notice – N548 Module Series

Jan 28, 2015

Dear Customers,

Dynastream Innovations Inc. (Dynastream) appreciates your adoption of ANT as the solution for your product's wireless communication needs. We pledge to support your component ordering efforts and invite your feedback.

As part of our continuous improvement efforts, Dynastream is upgrading the N548 module series from rev A to rev B with new factory pre-loaded software. One significant enhancement of this upgrade is the addition of the ANT-WP (Wireless Programming) bootloader which enables over-the-air firmware upgrades. Other upgrades are the S210 SoftDevice and the ANT Network Processor code. The [N5 ANT SoC Module Datasheet rev 1.4](#) has been released to detail all of the new added functions, as well as important notes thereof.

This product change requires attention in certain use scenarios to ensure code compatibility and proper module operation. Details of the changes are attached.

This change affects the following Dynastream part numbers:

- N548M8CB-REEL
- N548M8CB-TRAY
- N548M4CB-REEL
- N548M4CB-TRAY
- N548M5CB

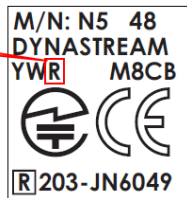
This product upgrade is effective immediately with shipment beginning Feb 5. If you have any questions or need additional information, please contact your local distributor or [ANT sales support](#).

Best Regards,

A handwritten signature in black ink, appearing to read "Thomas Zhao".

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## ANT PRODUCT CHANGE: #P021

<b>Affected Product: N548 Module Series</b>	<b>Effective Date: January 28, 2015</b>																				
<b>Reason for Changes:</b> Product feature enhancement.																					
<b>Description of Changes</b>																					
<p>1. Module upgrade from rev A to rev B with new factory loaded software, detailed as the table below.</p> <table border="1" style="margin-left: auto; margin-right: auto; border-collapse: collapse;"> <thead> <tr> <th style="text-align: center;">Module Rev</th> <th style="text-align: center;">S210 SoftDevice</th> <th style="text-align: center;">ANT-WP Bootloader</th> <th style="text-align: center;">ANT Network Processor Code</th> </tr> </thead> <tbody> <tr> <td style="text-align: center;">B</td> <td style="text-align: center;">v4.0.1 (AXX4.00B00)</td> <td style="text-align: center;">BFD1.00B00</td> <td style="text-align: center;">BAW3.00B00</td> </tr> <tr> <td style="text-align: center;">A</td> <td style="text-align: center;">v3.0.0 (AXX3.02B00)</td> <td style="text-align: center;">None</td> <td style="text-align: center;">BAW2.02B00</td> </tr> </tbody> </table> <p>For S210 SoftDevice upgrade, please refer to the S210 release note in the S210 SoftDevice package.</p> <p>The ANT-WP (Wireless Programming) bootloader code in Rev B, when activated, provides over-the-air firmware update capability using ANT File Share (ANT-FS) technology.</p>		Module Rev	S210 SoftDevice	ANT-WP Bootloader	ANT Network Processor Code	B	v4.0.1 (AXX4.00B00)	BFD1.00B00	BAW3.00B00	A	v3.0.0 (AXX3.02B00)	None	BAW2.02B00								
Module Rev	S210 SoftDevice	ANT-WP Bootloader	ANT Network Processor Code																		
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<p>2. ANT Network processor code assigned a previously unused Pin to the new BOOT function.</p> <table border="1" style="margin-left: auto; margin-right: auto; border-collapse: collapse;"> <thead> <tr> <th rowspan="2" style="text-align: center;">N548M8xx LGA Pad</th> <th rowspan="2" style="text-align: center;">N548M4xx Pin</th> <th rowspan="2" style="text-align: center;">N548M5xx Molex Connector</th> <th rowspan="2" style="text-align: center;">nRF51422 Pin Name</th> <th colspan="4" style="text-align: center;">ANT Network Processor Pin Assignments</th> </tr> <tr> <th style="text-align: center;">Pin Name</th> <th style="text-align: center;">Async Mode</th> <th style="text-align: center;">Sync Mode</th> <th style="text-align: center;">Function</th> </tr> </thead> <tbody> <tr> <td style="text-align: center;">E2</td> <td style="text-align: center;">15</td> <td style="text-align: center;">14</td> <td style="text-align: center;">P011</td> <td style="text-align: center;">BOOT</td> <td style="text-align: center;">BOOT</td> <td style="text-align: center;">BOOT</td> <td style="text-align: center;">Bootloader Startup. if not used, tie to ground or unconnected</td> </tr> </tbody> </table> <p>The intent of the BOOT function is to assist in updating/replacing the default images on the N548 modules using the ANT-WP bootloader without requiring host microcontroller intervention. If BOOT is held high upon power-up or start-up, the operation of the network processor code is bypassed and the ANT-WP bootloader code is activated. The module will remain in bootloader mode until certain conditions are met. Refer to <a href="#">N5 ANT SoC Module Datasheet rev 1.4</a>, Appendix A for details.</p>		N548M8xx LGA Pad	N548M4xx Pin	N548M5xx Molex Connector	nRF51422 Pin Name	ANT Network Processor Pin Assignments				Pin Name	Async Mode	Sync Mode	Function	E2	15	14	P011	BOOT	BOOT	BOOT	Bootloader Startup. if not used, tie to ground or unconnected
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<p>3. The ANT network process application changes the serial interface behavior.</p> <ul style="list-style-type: none"> <li>• For synchronous serial interface: the SPI rate has been changed from 4MHz to 500kHz when SPD_SEL (BR3) is low and SPI rate from 500kHz to 4MHz when the pin is high. This change makes the SPI rate setting be compatible with AP2/C7 modules.</li> <li>• For asynchronous serial interface: the RTS now toggles at the end of each message received to indicate message processing</li> </ul>																					
<p>4. The laser mark on the product metal shield:</p> <div style="display: flex; align-items: center;"> <div style="border: 1px solid red; padding: 2px; margin-right: 10px;">This letter will be B</div>  </div>																					
<p>5. Rev B will also displayed on shipping labels</p>																					

**Consequence of Changes:****For current Rev A module users, who load their own selected SoftDevices and/or application codes**

The programming in manufacturing is through the SWD interface. Including the following steps in the process will guarantee a transparent transition to Rev B or even a mixed use of Rev A and Rev B modules.

1. Erase all pre-programmed code and UICR values (e.g. BOOTLOADERADDR). This can be easily done by using the erase-all option if using nrfjprog.exe/nRFgo Studio from Nordic Semiconductor.
2. Program the selected SoftDevice
3. Program application software built for the selected SoftDevice

**For current Rev A module users who simply use the default factory pre-loaded software, i.e. the S210 v4.0.1 and the ANT network processor application**

Please make sure the changes in serial interface behavior will not impact the operation or some modifications on the micro controller code will have to be made to ensure a smooth transition to use rev B.

**For generic use of the module, please be noted of the following**

- Application code must be built for the loaded SoftDevice in order to function. For example, application build for the S210 v3.0.0 will not function with S210 v4.0.1, and vice versa.
- The BOOTLOADERADDR field in the UICR configuration register is set to the starting address of the ANT-WP bootloader. If the desired application needs to use code region reserved by the bootloader (0x3B800 – 0x40000), then the BOOTLOADERADDR field in UICR must be set to 0xFFFFFFFF. This can be done by fully erasing the module code using erase-all option in nrfjprog.exe/nRFgo Studio from Nordic Semiconductor and then programming the desired software images.
- When the module is first powered up with the factory pre-loaded software and the BOOT pin is held/driven high, the N548 will transmit active radio beacons for OTA update as the ANT-WP bootloader is activated. The user could program the module over-the-air via the bootloader, or simply ignore the beacon and do on-board programming via SWD interface.