



**Future Technology Devices International Ltd.**

## **Technical Note TN\_108**

### **VINCULUM Chipset Feature Comparison**

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This technical note compares the features of VNC1L and VNC2 devices.

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## **1 Introduction**

VII is the next generation device in the Vinculum family. The VNC2 device will build on the successes of the original VNC1L device.

## **2 Chipset summary**

### **2.1 VNC1L**

VNC1L is a single chip embedded USB host controller IC device. The entire USB protocol is handled on the chip.

The device supports two independent USB 2.0 Low-speed/Full-speed USB host ports with integrated pull-up and pull-down resistors.

The device supports USB suspend and resume with 3V3 interface.

### **2.2 VNC2 – Second generation device**

VNC2 expands on the abilities of the VNC1L devices with more memory and a faster processor. It also has a debug port and is supported with a suite of software development tools available to customers to create their own firmware.

### 3 Chipset comparison tables

#### 3.1 VNC1L vs VNC2

The following table highlights and compares the features of VNC1L and VNC2 devices.

FEATURE	VNC1L	VNC2
<b>MECHANICAL</b>		
Package	48 pin LQFP	64 pin LQFP (Also aiming at 32 pin and 48 pin cut down versions)
Temperature	-40 to +85C	-40 to +85C
<b>ELECTRICAL</b>		
VCC	3V3	3V3
VCCIO	5V tolerant 3V3	5V tolerant 3V3
CLK source	12MHz (external)	12MHz (external)
<b>CPU</b>		
	8-bit Harvard architecture	16-bit Harvard architecture
<b>INTERFACING</b>		
USB ports	2	2
UART port	1	1
SPI slave port	1	2
SPI master port	0	1
FIFO monitor port option	1	1
Debug port	0	1
<b>FIRMWARE</b>		
Precompiled firmware	YES	YES
Tools for creating own firmware	NO	YES
<b>MEMORY</b>		
DATA RAM	4k x 8 (4kbytes)	4k x 32 (16kbytes)
E-FLASH	64k x 8 (64kbytes)	128k x16 (256kByte)
<b>USB MODES</b>		
Speed	Full / low	Full / low
Transfer modes	Bulk / Interrupt	Bulk, interrupt, isochronous
<b>CONFIGURATION PORTS</b>		



UART	YES	YES
USB	YES (after initial programming)	YES
SPI	NO	YES
FIFO	NO	YES
DEBUG PORT	N/A	YES

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## 5 Appendix A– Definitions

### 5.1 Terms description

Terms	Description
UART	Universal Asynchronous Receiver Transmitter
FIFO	FT245 style asynchronous FIFO interface
SPI	Serial Peripheral Interface
USB	Universal Serial BUS

### 5.2 Links to datasheets

Chipset	Web link to datasheet
VNC1L	<a href="http://www.vinculum.com/documents/datasheets/DS_VNC1L_V201(FT_000030).pdf">http://www.vinculum.com/documents/datasheets/DS_VNC1L_V201(FT_000030).pdf</a>

## 6 Appendix B - Revision History

### Revision History

Version draft	Initial draft	13 <sup>th</sup> March, 2009
Version 1.0	Initial rev1.0	21 <sup>st</sup> May, 2009
Version 1.1	Released to the Web	26 <sup>th</sup> Feb, 2010