The intention of this errata technical note is to give a detailed description of known functional or electrical issues with the FTDI FT120 device.

The current revision of the FT120 is revision C, released April 2013.
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1 FT120 Revision

FT120 part numbers are listed in Table 1. The letter at the end of date code identifies the device revision.

The current revision of the FT120 is revision C, released May 2013. At the time of releasing this Technical Note there are no known issues with this silicon revision.

<table>
<thead>
<tr>
<th>Part Number</th>
<th>Package</th>
</tr>
</thead>
<tbody>
<tr>
<td>FT120Q</td>
<td>28 pin QFN</td>
</tr>
<tr>
<td>FT120T</td>
<td>28 pin TSSOP</td>
</tr>
</tbody>
</table>

Table 1 FT120 Part Numbers

This errata technical note covers the revisions of FT120 listed in Table 2.

<table>
<thead>
<tr>
<th>Revision</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>First device revision. Never sold publicly.</td>
</tr>
<tr>
<td>B</td>
<td>Second device revision. Launched May 2012</td>
</tr>
<tr>
<td>C</td>
<td>Third device revision. Launched April 2013</td>
</tr>
</tbody>
</table>

Table 2 FT120 Revisions
## 2 Errata History Table – Functional Errata

<table>
<thead>
<tr>
<th>Functional Errata</th>
<th>Short description</th>
<th>Errata occurs in device revision</th>
</tr>
</thead>
<tbody>
<tr>
<td>GL_N pin issue</td>
<td>Pin GL_N remains active when FT120 enters suspend state or USB cable is removed</td>
<td>B</td>
</tr>
<tr>
<td>SUSPEND pin issue</td>
<td>SUSPEND pin not active when bit Clock Running of Set Mode command is set to ‘1’ and FT120 enters suspend state</td>
<td>B</td>
</tr>
<tr>
<td>CLKOUT pin issue</td>
<td>CLKOUT pin not switch to suspend clock when bit Clock Running of Set Mode command is set to ‘1’ and bit No Suspend Clock is set to ‘0’ and FT120 enters suspend state</td>
<td>B</td>
</tr>
<tr>
<td>Interrupt for endpoint index 4 and 5 missing</td>
<td>In non-DMA mode, interrupt will not be generated when bits 6 and 7 of DMA Configuration Register (Set Mode command) are not set</td>
<td>B</td>
</tr>
<tr>
<td>INT_N and GL_N pins issue</td>
<td>The INT_N and GL_N pins are not open drain</td>
<td>B</td>
</tr>
</tbody>
</table>

Table 3 Functional Errata

### 2.1 Errata History Table – Electrical and Timing Specification Deviations.

<table>
<thead>
<tr>
<th>Deviations</th>
<th>Short description</th>
<th>Errata occurs in device revision</th>
</tr>
</thead>
<tbody>
<tr>
<td>-</td>
<td>No known issues</td>
<td>-</td>
</tr>
</tbody>
</table>

Table 4 Electrical and Timing Errata
3 Functional Errata of FT120

3.1 Revision B

3.1.1 GL_N issue

Introduction:
The FT120 has a dedicated GL_N output pin (open-drain). The function of GL_N pin is to indicate the USB traffic while USB session is on-going. The GL_N can be used to drive a LED which will blink during USB transactions.

Issue:
When FT120 is configured and then goes to suspend state, the GL_N pin shall become non-active but it remains active. This may cause suspend current at high level if GL_N is used to drive a LED.

For self-powered application, when FT120 is configured and then the USB cable is un-plugged, the GL_N pin shall become non-active but it remains active. This may cause confusion to end user if GL_N is used to drive a LED.

Workaround:
There are a few possible workarounds:
1) Do not use GL_N pin to drive a LED, or choose a small current LED;
2) Use SUSPEND pin to gate the GL_N;
3) Use the Vbus sensing circuit to gate the GL_N (for self-powered application only).

Package specific:
The effected packages are listed in Table 5.

<table>
<thead>
<tr>
<th>Package</th>
<th>Applicable (Yes/No)</th>
</tr>
</thead>
<tbody>
<tr>
<td>FT120Q</td>
<td>Yes</td>
</tr>
<tr>
<td>FT120T</td>
<td>Yes</td>
</tr>
</tbody>
</table>

Table 5

3.1.2 SUSPEND pin not asserted while Clock Running bit is ‘1’

Introduction:
The FT120 has a dedicated SUSPEND output pin (open-drain). When USB bus is suspended (bus idle for more than 3ms), the SUSPEND pin shall be floating (pull HIGH by external pull-up resistor) to indicate suspend condition.

Issue:
When the Clock Running bit of the Set Mode command is set to ‘1’ and FT120 enters USB suspend the SUSPEND pin shall be floating but it remains driving LOW. This may cause issue for systems where the SUSPEND pin is used for power management circuits and/or indication to the microcontroller that the USB is in suspend state. For systems where the SUSPEND pin is not used, this issue has no impact.
Workaround:

Firmware workaround solutions exist depending on specific application:

Solution 1: This solution is applicable for applications where the SUSPEND pin is used for indication to the microcontroller that the USB is in suspend state. When the Clock Running bit is set to ‘1’, FT120 clock remains active and the parallel bus remains functional in suspend state. FT120 will generate interrupt to indicate the USB enters suspend state. The microcontroller can use the suspend interrupt rather than use the SUSPEND pin to detect the suspend event. To resume the USB bus, the microcontroller can issue Send Resume command to FT120 without driving LOW to the SUSPEND pin.

Solution 2: This solution is applicable for applications where the SUSPEND pin is used to control the power management circuits. Firmware can be modified to set the Clock Running bit of Set Mode command to be ‘0’. The SUSPEND pin will function per normal under this configuration.

Package specific:

The effected packages are listed in Table 6.

<table>
<thead>
<tr>
<th>Package</th>
<th>Applicable (Yes/No)</th>
</tr>
</thead>
<tbody>
<tr>
<td>FT120Q</td>
<td>Yes</td>
</tr>
<tr>
<td>FT120T</td>
<td>Yes</td>
</tr>
</tbody>
</table>

Table 6

3.1.3 CLKOUT does not output suspend clock

Introduction:

The FT120 has a dedicated CLKOUT output pin. During USB suspend the CLKOUT pin shall switch to the 30kHz suspend clock when the No Suspend Clock bit of the Set Mode command is set to ‘0’, and the Clock Running bit of the Set Mode command is set to ‘1’. This will help to reduce the supply current of the microcontroller if it uses the CLKOUT signal as the clock source.

Issue:

When the No Suspend Clock bit of the Set Mode command is set to ‘0’ and the Clock Running bit of the Set Mode command is set to ‘1’ and FT120 enters USB suspend, the CLKOUT output will not switch to the 30kHz suspend clock. This may cause the system suspend current to reach a relatively high level. For systems where the CLKOUT pin is not used, this issue has no impact.

Workaround:

Firmware can be modified to set the Clock Running bit of Set Mode command to be ‘0’. Under this configuration the CLKOUT will switch to 30 kHz suspend clock upon entering USB suspend state. To resume the USB bus, the firmware needs to wakeup FT120 by driving the SUSPEND pin to LOW, and then issue Send Resume command to FT120.
Package specific:
The effected packages are listed in Table 7.

<table>
<thead>
<tr>
<th>Package</th>
<th>Applicable (Yes/No)</th>
</tr>
</thead>
<tbody>
<tr>
<td>FT120Q</td>
<td>Yes</td>
</tr>
<tr>
<td>FT120T</td>
<td>Yes</td>
</tr>
</tbody>
</table>

Table 7

### 3.1.4 Interrupts not generated for endpoint index 4 and 5

**Introduction:**

Bit 6 and 7 of the Set DMA command is used to enable/disable the interrupts for endpoint index 4 and 5 when DMA mode is enabled. For non-DMA mode, these two bits shall have no impact on interrupt generating over endpoint index 4 and 5.

**Issue:**

For non-DMA mode, FT120 will not generate interrupts for endpoint index 4 and 5 if bit 6 and 7 of the Set DMA command is set to ‘0’.

**Workaround:**

Set bit 6(Endpoint Index 4 Interrupt Enable) and bit 7(Endpoint Index 5 Interrupt Enable) of the Set DMA command to ‘1’ for non-DMA mode, if these endpoints are enabled.

Package specific:
The effected packages are listed in Table 8

<table>
<thead>
<tr>
<th>Package</th>
<th>Applicable (Yes/No)</th>
</tr>
</thead>
<tbody>
<tr>
<td>FT120Q</td>
<td>Yes</td>
</tr>
<tr>
<td>FT120T</td>
<td>Yes</td>
</tr>
</tbody>
</table>

Table 8
3.1.5 INT_N and GL_N pins issue

**Introduction:**

Pins INT_N and the GL_N are not set as open-drain.

**Issue:**

Both the INT_N and the GL_N pins are configured as active driver. They should be configured as open-drain as per specification.

**Workaround:**

No known workaround.

**Package specific:**

The affected packages are listed in Table 8

<table>
<thead>
<tr>
<th>Package</th>
<th>Applicable (Yes/No)</th>
</tr>
</thead>
<tbody>
<tr>
<td>FT120Q</td>
<td>Yes</td>
</tr>
<tr>
<td>FT120T</td>
<td>Yes</td>
</tr>
</tbody>
</table>

Table 9

3.2 Revision C

No known issues at revision C
4 Electrical and Timing specification deviations of FT120

4.1 Revision B

No known issues at revision B

4.2 Revision C

No known issues at revision C
5 FT120 Package Markings

FT120 is available in a RoHS Compliant RoHS Compliant package, 28 pin QFN and 28 pin TSSOP. An example of the markings on the package is shown in Figure 1 and Figure 2.

The date code format is YYWW where WW = 2 digit week number, YY = 2 digit year number. This is followed by the revision number.
6 Contact Information

**Head Office – Glasgow, UK**

Future Technology Devices International Limited  
Unit 1, 2 Seaward Place, Centurion Business Park  
Glasgow G41 1HH  
United Kingdom  
Tel: +44 (0) 141 429 2777  
Fax: +44 (0) 141 429 2758

E-mail (Sales)  
sales1@ftdichip.com  
E-mail (Support)  
support1@ftdichip.com  
E-mail (General Enquiries)  
admin1@ftdichip.com

**Branch Office – Tigard, Oregon, USA**

Future Technology Devices International Limited  
(USA)  
7130 SW Fir Loop  
Tigard, OR 97223  
USA  
Tel: +1 (503) 547 0988  
Fax: +1 (503) 547 0987

E-mail (Sales)  
us.sales@ftdichip.com  
E-mail (Support)  
us.support@ftdichip.com  
E-mail (General Enquiries)  
us.admin@ftdichip.com

**Branch Office – Taipei, Taiwan**

Future Technology Devices International Limited  
(Taiwan)  
2F, No. 516, Sec. 1, NeiHu Road  
Taipei 114  
Taiwan, R.O.C.  
Tel: +886 (0) 2 8791 3570  
Fax: +886 (0) 2 8791 3576

E-mail (Sales)  
tw.sales1@ftdichip.com  
E-mail (Support)  
tw.support1@ftdichip.com  
E-mail (General Enquiries)  
tw.admin1@ftdichip.com

**Branch Office – Shanghai, China**

Future Technology Devices International Limited  
(China)  
Room 1103, No.666 West Huaihai Road,  
Shanghai, 200052  
China  
Tel: +86 21 62351596  
Fax: +86 21 62351595

E-mail (Sales)  
 cn.sales@ftdichip.com  
E-mail (Support)  
 cn.support@ftdichip.com  
E-mail (General Enquiries)  
 cn.admin@ftdichip.com

**Branch Office – Singapore**

Future Technology Devices International Limited (Singapore)  
178 Paya Lebar Road  
#07-03/04/05  
Singapore 409030  
Tel: +65 6841 1174  
Fax: +65 6841 6071

E-mail (Support)  
support1@ftdichip.com  
E-mail (General Enquiries)  
admin1@ftdichip.com

**Web Site**

http://ftdichip.com

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## Appendix C – Revision History

<table>
<thead>
<tr>
<th>Version</th>
<th>Description</th>
<th>Date</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>1.0</strong></td>
<td>Initial release</td>
<td>17/10/2012</td>
</tr>
<tr>
<td><strong>2.0</strong></td>
<td>Revision C release</td>
<td>28/6/2013</td>
</tr>
</tbody>
</table>