

iW-RainboW-G3 / G3V FAQs:

Processor / Memory / Configurations:

1. What is iW-RainboW-G3?

It is a Design Solution based on Freescale's i.MX27 /ARM9 processor running at 400MHz core frequency. This can be used for quick prototyping and developing any embedded computing applications in Industrial /Automotive/Medical and also for various applications.

This iMX27 platform has rich multimedia capability targeted to OEMs/ODMs, who can adopt this design and bring out innovative and cost-effective products within a short period of time.

2. What is the RAM memory size supported by iW-RainboW-G3?

128MB RAM is supported and it can be expandable upto 256MB. Scalability will be supported by doing quick customization with customization charges. For higher RAM requirements, please refer i.Mx51 based iW-RainboW-G8 and AtomZ5xx based iW-RainboW-G6 platforms in www.iwavesystems.com.

3. What are the benefits of selecting / using iWave's iW-RainboW-G3 for my development?

- Any product development can be done in the shortest possible time using iWave's existing iW-Rainbow-G3 design. This results in the quick time to market.
- Reusing the existing iW-Rainbow-G3 hardware and software design will reduce the development effort considerably.
- Plug-in modules like, Wi-Fi, GPS, GSM/GPRS etc. are already tested and validated on G3 platform.
- The BoM is optimized since the design has been improved over many product designs.

4. What is the difference between G3 and G3V?

G3V is single board approach & it supports features:

- Freescale i. MX27/ARM9 @ 400 MHz
- 128 MB Nand Flash, 128 MB DDR
- Dual SD Slots
- USB 1.1 Host
- UART/Serial
- Video IN/OUT
- Audio IN/OUT
- 7" TFT LCD with Touch
- VGA out
- USB 2.0 Host
- Ethernet
- OS: Embedded Linux 2.6.19/ Windows CE 6.0/ Android 1.6
- Form factor: G3 - 140mm x 115mm.

G3 is module based approach and IO board is required to develop any products. The G3 module supports the following features:

- Freescale i.MX27/ARM9 @ 400 MHz
- 32MB NOR Flash, 128 MB MDDR
- Dual SD slots
- USB 1.1 Host
- UART/Serial
- Video IN

- Audio IN/OUT
- 3.5" TFT LCD with Touch
- VGA out
- OS: Embedded Linux 2.6.19, WinCE 6.0, Google's Android 1.5
- Form factor: G3 - 99mm x 73mm

5. What is the Flash memory size supported by iW-RainboW-G3?

G3 module supports 32MB NOR Flash which is expandable up to 128MB. It doesn't support any NAND flash. G3V platform supports both Nand Flash and NOR flash. In default G3V supports 12MB NAND flash is supported which is expandable up to 2GB.

6. Is Compact Flash is supported on iW-RainboW-G3?

Compact Flash not supported on G3 and G3V platforms. Please refer the following link for more details. But Compact flash is validated on iWave's Rainbow G3 platform. For more details please contact mktg@iwavesystems.com

7. Is free GPIO available iW-RainboW-G3V?

Rainbow G3 supports 15 free GPIOs

Rainbow G3V provides the following GPIO support:

- 7 free GPIO's are available
- If keypad or URAT2 is not used, 4 additional GPIOs will be available
- If UART3 is not used , 4 additional GPIOs will be available
- If UART4 is not used, 4 additional GPIOs will be available

8. Is i.MX27 supports 720p encode & decode?

No. i.MX27 only supports D1 (720X480) video encode & decode. For 720p requirement please check iWave's iMX51 based Rainbow-G8 platform in the following link. <http://www.iwavesystems.com/iW-Rainbow-G8.htm>

9. What is the video hardware accelerators supported by i.MX27?

iMX27 supports H.264 BP, MPEG-4 SP and H.263 P3 hardware-accelerated video encoders and decoders

10. 10. Is iW-RainboW-G3 supports Industrial grade operation?

iWave's Rainbow G3 and G3V supports -20°C to +85°C. Rainbow G3I supports -40°C to +85°C operation. For more details on industrial grade operation please contact mktg@iwavesystems.com

11. 11. Is fast-boot is available on iWave's G3 platform?

The fast boot is not currently available on iWave's i.MX27 platform. For latest information on the fast boot support please contact mktg@iwavesystems.com

LCD / Display / Camera / Video / Audio:

12. What is the LCD size & resolution supported by iW-RainboW-G3?

- G3 supports 3.5"(320x240) and 7"(800x480) LCDs
- G3V supports 7"(800x480) LCD

13. Does the LCD support Touch?

Yes. iWave's both RainboW G3 and G3V supports Resistive Touch screen.

14. I need different display screen with different resolution. Is this possible?

Yes. iWave can support different size display screen with different size by customizing the hardware provided necessary customization charges are paid by customer.

15. Is S-video out/TV-out/Composite out ports supported in the iW-RainboW-G3?

Composite TV Out is supported in G3V. S-Video out can be supported by customizing G3V provided necessary customization charges are paid by customer.

Communication Interface / GPRS / WLAN / IO:

16. Is GPS, GSM/GPRS features are supported on iW-RainboW-G3?

GPS and GSM/GPRS modules can be connected to G3 or G3V through UART interface. iWave's iW-GPS-01, iW-GPS-02 and Wavecom GSM/GPRS modules are already tested in G3 platform with Linux 2.6.19, WinCE 6.0 and Google's Android 1.5/1.6 operating systems.

17. Is Wi-Fi supported on iW-RainboW-G3?

Wi-Fi modules can be supported through onboard SD interfaces. Spectec SD Wi-Fi modules are tested on this platform with Linux 2.6.19, WinCE 6.0 and Google's Android 1.5/1.6 operating systems.

18. Is 3G supported on iW-RainboW-G3?

3G module can be supported through USB, but it requires additional software development which can be done by iWave through customization design services. Presently no 3G module is validated on G3 platform

Power / Battery / Camera:

19. Is camera supported on iW-RainboW-G3?

G3 supports VGA Camera. Advanced camera features can also be supported. Please contact mktg@iwavesystems.com for more details.

20. Is dual camera support possible on iW-RainboW-G3?

G3 doesn't support dual camera feature. But dual Camera support is available in iW-RainboW-G8 platform <http://www.iwavesystems.com/iW-Rainbow-G8.htm>. For more details mktg@iwavesystems.com

21. Is battery support available on iW-RainboW-G3?

Battery is supported as a optional features in G3 platform. 3.7V, 2100mA battery is tested with G3 platform. 1-3 hours battery backup can be achieved using this battery depends on the application and Io interfaces used on the platform.

Software:

1. What are the OS's supported by iW-RainboW-G3?

The following OS's are supported on the G3 platform,

- Embedded Linux 2.6.19
- WinCE6.0 R2 or R3
- Android 1.6.

2. Are all peripheral drivers for G3 available with Linux?

Yes. All the peripheral drivers such as SD, UART, USB OTG and LCD with touch drivers etc., are supported with Linux operating system.

3. Are all peripheral drivers for G3 available with WinCE6.0 R2?

Yes. All the peripheral drivers such as SD, UART, USB OTG and LCD with touch drivers etc., are supported with WinCE 6.0 R2. Please contact mktg@iwavesystems.com if any additional details required.

4. Are all peripheral drivers for G3 available with Android1.6?

Yes. All the peripheral drivers such as SD, UART, USB OTG and LCD with touch drivers etc., are supported with Android1.6 operating system.

5. Is it possible to run latest Android versions 2.1 or higher on iW-RainboW-G3?

Yes. It can be supported as part of customization design services by iWave. Please contact mktg@iwavesystems.com for more details.

6. What kind of boot loader is supported with iW-RainboW-G3?

iWave have developed its own custom boot loader, which is supported on its G3 platform.

7. Is any diagnostic testing of hardware possible with boot loader?

Yes. Diagnostic testing of all the Interfaces like UART, SD, LCD and Ethernet etc., are possible with boot loader

8. BSP source code for the Wince 6.0 R3 will be provided?

Yes. iWave shall provide BSP source code for the Wince 6.0 R3 as part of IP License business model.

9. How can I integrate my application in iW-RainboW-G3?

iWave will provide necessary software tools and user manual to integrate any applications in G3

- WinCE - Visual Studio 2005 and Target Designer
- Linux - GNU GCC (with little endian support) will be installed in Linux HOST PC

10. Is keypad and LED support is available in the existing iW-RainboW-G3 platform?

Yes. There is a provision on the board to connect Keypad and LEDs by external wiring. This requires quick customization on the hardware.

11. Is Vxworks or any other RTOS can be ported in to this platform?

Vxworks is already ported in G3 and iWave can provide loaded VxWorks with the license version. The license cost has to be paid by customer. Any other RTOS like iTRON can be ported and corresponding drivers also can be developed by iWave under customization business model.

12. Can you provide MPEG4, H.264, Camera and Alpha Blending APIs?

- **On Linux:**

iWave will provide necessary APIs and Test application for MPEG4 and H.264 encoder and decoder. Customers can use standard Linux APIs (V4L2) for capturing Camera Image and We will also provide Alpha Blending APIs.

- **On Windows CE:**

Supports Direct show driver and User API for MPEG4 and H.264 encoder and decoder.

iWave will provide Alpha Blending and Camera capture APIs.

13. Will iWave provide some software application/GUI development services on iW-RainboW-G3?

iWave will provide the test applications for only the Linux platform without any GUI for checking the functionalities of all the interfaces.

Android GUI is provided on this platform. Customers can make use of Android applications for testing the interfaces. iWave can develop any embedded GUI under customization business model.

Deliverables / Pricing / License / Warranty / Support:

1. I need a G3 reference kit ASAP. What is the price & lead-time of the iW-RainboW-G3?

Reference kit is readily available with iWave. The pricing of the kit will differ based on software delivery form or the source code license delivery. Please contact mktg@iwavesystems.com for the pricing details and lead-time

2. What are the standard deliverables of iW-Rainbow-G3 reference kit?

The following are the standard deliverables associated with reference kit

- Boot code & OS loaded Hardware Platform
- AC-DC Power adaptor
- Serial Cable
- User manual

3. What is the warranty support?

iWave provides standard warranty support for a period of 3 months. Extended support can be provided for years with additional cost. Customers can also depute iWave engineers in customer site for development support with additional cost. For more details on the technical & warranty support please contact iWave.

4. Is any sample applications will be provided with reference kit?

Yes. Sample applications including audio, camera and video players will be provided.

5. What type of documents will be provided with reference kit?

User Manual will be provided with the reference kit.

6. What are the price of 100 nos and 1000 nos volume of G3 module?

The volume pricing is based on the configuration and OS support. Please contact mktg@iwavesystems.com to know more about the pricing and available business models.

7. Whether Schematics, layout files and software source codes will be provided with reference kit?

Schematics, layout files and software source codes will not be provided with standard reference kit. This design files can be provided as part of IP License business model.

8. How long of iW-RainboW-G3 design will be supported for manufacturing?

The lifetime of the platform is mainly depends on the silicon availability from the silicon vendors. iWave can support G3 for 5-7years life time.

9. Can I License the complete iW-Rainbow-G3 design?

Yes. Customers can license the G3 design with licensing business model. Please contact mktg@iwavesystems.com for more details.

10. What are the deliverables of iW-Rainbow-G3 design license?

- H/W Design Document
- Schematics
- PCB Layout and Gerber files
- BoM List
- Binary BSP source code
- User manual
- Binary boot loader

11. I need some special custom IO interfaces on iW-RainboW-G3. Is customization of existing design possible?

Yes. iWave can quickly provide hardware, FPGA and software customization services in the existing design. Please contact iWave for more details

12. I want to add some FPGA logic or application oriented IP blocks. Is it possible with iW-Rainbow-G3?

Yes. There is a provision to mount FPGA in G3. Please contact mktg@iwavesystems.com for more details.

13. Is any products already enabled by iW-Rainbow-G3?

Yes. There are about 13 designs/products are already developed around G3 for different applications, like Healthcare, Industrial etc., The design is stable, proven and BOM optimized across many products developments.