

License information of OSS in the wireless inside phone

Technics EAH-AZ100

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1. FreeRTOS(10.4.5)

License Details

The FreeRTOS kernel and other [FreeRTOS libraries](#) are distributed for free under the [MIT open source license](#). The [FreeRTOS kernel license comparison](#) table below contains answers to common license questions. Some demo projects also include third-party libraries that may use an open source license other than MIT.

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Optional FreeRTOS commercial licensing

From our strategic partner [WITTENSTEIN high integrity systems](#).

- [OPENRTOS™](#) is a commercially licensed version of the FreeRTOS kernel that includes indemnification and dedicated support. FreeRTOS and OPENRTOS share the

same code base. OPENRTOS is provided under license from AWS by WITTENSTEIN high integrity systems - an AWS strategic partner.

- SAFERTOS™ is a derivative version of the FreeRTOS kernel that has been analyzed, documented and tested to meet the stringent requirements of industrial (IEC 61508 SIL 3), medical (IEC 62304 and FDA 510(K)) automotive (ISO 26262) and other international safety standards. SAFERTOS includes independently audited safety life cycle documentation artifacts. SAFERTOS is provided by WITTENSTEIN high integrity systems - an AWS strategic partner.

FreeRTOS kernel license comparison

	FreeRTOS kernel MIT license	<u>OpenRTOS</u> Commercial license
Is it free?	Yes	No
Can I use it in a commercial application?	Yes	Yes
Is it royalty free?	Yes	Yes
Is a warranty provided?	No	Yes
Can I receive professional technical support on a commercial basis?	Yes	Yes
Is legal protection provided?	No	Yes, IP infringement protection is provided
Do I have to open source my application code that makes use of the FreeRTOS services?	No	No
Do I have to open source my changes to the FreeRTOS kernel?	No	No
Do I have to document that my product uses FreeRTOS?	No	No
Do I have to offer to provide the FreeRTOS code to users of my application?	No	No

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2. LZMA decoder(21.02)

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LZMA SDK is placed in the **public domain**.

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4. FatFs(0.14b)

About FatFs License

Petit FatFs has being developped as a personal project of author, ChaN. It is free from the code anyone else wrote. Following code block shows a copy of the license document that included in the source files.

```
/*-----/
/ Petit FatFs - FAT file system module  R0.03a
/-----/
/
/ Copyright (C) 2019, ChaN, all right reserved.
/
/ Petit FatFs module is an open source software. Redistribution and use of
/ Petit FatFs in source and binary forms, with or without modification, are
/ permitted provided that the following condition is met:
/
/ 1. Redistributions of source code must retain the above copyright notice,
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```

...

Therefore FatFs license is one of the BSD-style licenses but there is a significant feature. FatFs is mainly intended for embedded systems. In order to extend the usability for commercial products, the redistributions of FatFs in binary form, such as embedded code, binary library and any forms without source code, does not need to include about FatFs in the documentations. This is equivalent to the 1-clause BSD license. Of course FatFs is compatible with the most of open source software licenses including GNU GPL. When you redistribute the FatFs source code with any changes or create a fork, the license can also be changed to GNU GPL, BSD-style license or any open source software license that compatible with FatFs license.

5. micro-ecc(v1.0)

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6. CMSIS(Version 5.7.0)

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Version 2.0, January 2004

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7. utf8_check()

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8. Opus codec(1.1.4)

License

Opus has a freely available specification, a BSD-licensed, high-quality reference encoder and decoder, and protective, royalty-free licenses for the required patents. The copyright and patent licenses for Opus are

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In brief:

(see [below](#) for details)

- ✓ You can encode or decode Opus-compatible streams for any purpose at no cost.
- ✓ You can integrate the reference Opus encoder and decoder in any application, program or product, even commercially, at no cost.
- ✓ You can create your own compatible implementations of the Opus specification and give them away or sell them.
- ✗ You may *not* do these things if you engage on Opus-related patent litigation against *any* user of Opus.

Licensing details

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Specification

The specification is freely available as part of IETF RFC 6716. The RFC includes the reference implementation, which is available under the three-clause BSD license (see below).

Implementation

Both the reference implementation and the revised implementations on opus-codec.org are available under the three-clause BSD license. This BSD license is compatible with all common open source and commercial software licenses.

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Tools

Most of the command-line Ogg-based tools that are shipped as part of the separate opus-tools package are also released under the three-clause BSD license. The only exception is the opusinfo tool, which is released under the GPLv2 license. Proprietary software developers wishing to use Opus may copy code from opusenc and opusdec, but they may not copy code from the opusinfo tool to build their applications.

Patents

Opus is covered by several patents. These patents are available under open-source-compatible, royalty-free licenses. If you are not trying to attack Opus with your patents, you will not have problems with these licenses.

Some of these licenses have been updated in the past and may be updated again in the future. However, updates never invalidate the old licenses and users are always free to rely on any of the previously available licenses. In other words, newer licenses can give more rights, but never fewer.

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The Xiph.Org foundation has several patent applications on techniques used in Opus. When issued, these patents will be automatically available under the terms provided in the below license. The license covers the listed patent applications, along with any other patent or application covering Opus that is owned by Xiph.Org.

Xiph.Org Patents/Applications covered:

- US 61/284,154
- US 61/450,041
- US 61/450,053
- US 61/450,060
- and any other applicable
-

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- US 61/406,106
- US 61/394,842
- US 7,353,168
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-

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Microsoft Patents/Applications covered:

- US-2008-0201137-A1
- US-2010-0174535-A1
- US-2010-0174534-A1
- US-2010-0174547-A1
- US-2010-0174532-A1
- US-2010-0174537-A1
- US-2010-0174542-A1
- US-2010-0174531-A1
- US-2010-0174541-A1
- US-2010-0174538-A1
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11-7-2012

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6.2. Code Implementation. "Code Implementation" means making, using, selling, offering for sale, importing or distributing 1) the Reference Implementation, or 2) an implementation that, in the case of an encoder, produces a bitstream that can be decoded by a Specification Implementation solely to the extent it produces such a bitstream, and, in the case of decoder, is a Specification Implementation, where that Specification Implementation may also infringe Necessary Reference Implementation Claims.

6.3. Control. "Control" means direct or indirect control of more than 50% of the voting power to elect directors of that corporation, or for any other entity, the power to direct management of such entity.

6.4. I, Me, or My. "I," "me," or "my" refers to the party making this declaration, and any entity that I Control.

6.5. Necessary Claims. "Necessary Claims" means Necessary Decoder Claims and Necessary Reference Implementation Claims.

6.6. Necessary Decoder Claims. "Necessary Decoder Claims" are those patent claims that a party owns or controls, including those claims acquired after the date of this declaration, that are necessarily infringed by an implementation of the required portions (including the required elements of optional portions) of the decoder Specification that are described in detail and not merely referenced in the Specification.

6.7. Necessary Reference Implementation Claims. "Necessary Reference Implementation Claims" are those patent claims that a party owns or controls, including those claims acquired after the date of this declaration, that are necessarily infringed by the Reference Implementation. Necessary Reference Implementation Claims do not include claims that would be infringed only as a consequence of further modification of the Reference Implementation.

6.8. Reference Implementation. "Reference Implementation" means the implementation of the Opus encoder and/or decoder code extracted from Appendix A of the Specification.

6.9. Specification. "Specification" means IETF RFC 6716 dated September 2012.

6.10. Specification Implementation. "Specification Implementation" means making, using, selling, offering for sale, importing or distributing any conformant implementation of the decoder set forth in the Specification 1) only to the extent it implements the Specification and 2) so long as all required portions of the Specification are implemented. Specification Implementation also includes any implementation of a decoder included in subsequent versions of RFC 6716 1) only to the extent that it implements the decoder Specification, and 2) so long as all required portions of the decoder Specification are implemented.

6.11. You or Your. "You," "you," or "your" means any person or entity who exercises patent rights granted under this Agreement, and any person or entity you Control.

This license is also filed on the [IETF site](#). The [old license](#) is still available.

Other disclosures

While Xiph.Org, Broadcom, and Microsoft filed IPR disclosures giving royalty-free licenses to their patents used in Opus, four companies that did not directly participate in the development of Opus, Qualcomm, Huawei, France Telecom, and Ericsson, filed IPR disclosures with potentially royalty-bearing terms. The IETF allows anyone (and their dog) to file an IPR disclosures if they think that their patents "covers or may ultimately cover" a standard. In fact, for any organization who can be said to have contributed in any (very loosely defined) way, these IPR statements are not just allowed, but required. It is thus safer for organisations to declare as much as they can. As an example, one can find similar non-free Qualcomm IPR statements on both [SIP](#) and [SDP](#). To our advantage, however, the IETF IPR disclosure policies require companies to provide the actual patent numbers. This allows anyone to verify these claims for themselves, which is definitely a good thing.

When it comes to patents, it is difficult to say much without making lawyers nervous. However, we can say something quite direct: **external counsel Dergosits & Noah has advised us that Opus can be implemented**

without the need to license the patents disclosed by Qualcomm, Huawei, France Telecom, or Ericsson. We can also say that Mozilla is confident enough in Opus to ship it to hundreds of millions of Firefox users. Similarly, Cisco and Google are also supporting Opus in some products. More companies are expected to do the same soon.

Mozilla invested significant legal resources into avoiding known patent thickets when designing Opus. Whenever possible, we used processes and methods that have been long known in the field and which are considered patent-free. In addition, we filed numerous patent applications on the new things we invented to help defend the Opus community. As a result, Opus is available on a royalty-free basis and can be deployed by anyone, including other open-source projects. Everyone knows this is an incredibly challenging legal environment to operate in, but we think we've succeeded.

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9. nanopb(0.4.5)

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10. mSBC Encoder(5.1.0)

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11. STM IMU sensor(v1.00)

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