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NP30 Network Player – Design Brief

April 2017

The NP30 Network Player M30 adapts any high quality music system for audiophile streaming, Internet radio, aptX Bluetooth, and gapless audio playback, through integration with UPnP devices such as PC/Mac/NAS iPod®, iPad®, iPhone® or USB thumb drive. It's a genuine 24/192 DAC including 3x optical, 1x SP/DIF, USB-A, USB-B, WLAN, LAN inputs (incorporating an asynchronous master clock for low jitter), and XLR, RCA, Digital (192 kHz), IRout, TRIGout outputs.

What we define for File Based Audio:

- **Streaming: 'live' download for Internet radio and Music services like Spotify and playing music over a network from NAS or PC**
- **Playback of Audio files: Playing music files directly from laptop or PC over a USB-B connection. This means using programs like iTunes (Amara) and JRIVER as user interface**

Recommendations

· Use of a high quality wireless router

· Use of high quality CAT7 Cables

· Use of a switch between the Primare MM30, NP30 or PRE60 and computer or NAS

· Use of good quality files such as WAV, AIFF or FLAC-uncompressed

· Primare App is available for both iOS and Android. (iOS version supports Voice Over for visually impaired people)

· For High Res streaming LAN is needed.

· WLAN: 802.11b, g, n; 2.4 GHz band; WPA, WPA2 security – Ethernet: 10/100 MBit/s – DHCP and AutoIP support

· Advantage of an asynchronous USB connection is that the clock, present in the DAC, controls the flow of audio data from the computer to avoid the imprecise clock used in the computer.

· Please use a high quality USB-B cable for connection and make sure to check your audio settings in your computer

· Also try the different USB connections on your laptop as they do sound different.

· Please make sure to download the PC audio driver from the SUPPORT section on our website

· For playing music from PC over USB-B please download the Primare PCaudio driver from the SUPPORT page from www.primare.net .

· From MAC it will play automatically.
· Over USB-B will give best sound quality from Spotify PREMIUM. (please set audio setting in Spotify on Extreme)
· Firmware updates can be done from the device's MENU or from Primare App.

Supported Audio Formats

Codec	Channels	Samplerates in kHz	Sample format	Bitrate	Gapless	Restrictions
WAV	mono/ stereo	8, 11.025, 16, 22.05, 32, 44.1, 48, 88.2, 96, 176.4, 192	Int: 8, 16, 24 Float: 32	n.a.	yes	samplerate > 48kHz not on WLAN
LPCM	mono/ stereo	8, 11.025, 16, 22.05, 32, 44.1, 48, 88.2, 96, 176.4, 192	Int: 8, 16, 24	n.a.	yes	samplerate > 48kHz not on WLAN
AIFF	mono/ stereo	8, 11.025, 16, 22.05, 32, 44.1, 48, 88.2, 96, 176.4, 192	Int: 8, 16, 24 Float: 32	n.a.	yes	samplerate > 48kHz not on WLAN
FLAC	mono/ stereo	8, 11.025, 16, 22.05, 32, 44.1, 48, 88.2, 96, 176.4, 192	16/24	n.a.	yes	samplerate > 48kHz not on WLAN
ALAC	mono/ stereo	44.1, 48, 88.2, 96	16/24	n.a.	yes	
MP3	mono/ stereo	8, 11.025, 16, 22.05, 32, 44.1, 48	n.a.	max 320kBit/s CBR/VBR	yes	gapless support needs LAME extensions in file header
MP4 (AAC)	mono/ stereo	8, 11.025, 16, 22.05, 32, 44.1, 48	n.a.	max 400kBit/s CBR/VBR	yes	gapless support needs LAME extensions in file header
OGG Vorbis	mono/ stereo	16, 22.05, 32, 44.1, 48	n.a.	max 500kBit/s CBR/VBR	no	
WMA	mono/ stereo	8, 11.025, 16, 22.05, 32, 44.1, 48	n.a.	max 320kBit/s CBR/VBR	no	WMA9 only, no lossless or professional codec

Audiophile Topology

Consistent with Primare design philosophy, the NP30 incorporates multiple power supplies to ensure that optimum levels of clean power reach the digital and analogue sections -a master switch mode power supply feeds a total of six analogue and three digital power supplies. To further protect the purity of the analogue output signals, digital and analogue signal paths have their own dedicated ground planes. Sound quality is preserved to the output with a fully balanced output stage incorporating discrete FET amplifiers. An audiophile relay-controlled MUTE circuit ensures super-quiet input selection.

24/192 USB Interface

For reliable 24/192 operation, Primare has chosen XMOS because it offers an integrated

communication hub hosting the MCU. XMOS and Primare's developers in Sweden, have collaborated to optimize XMOS firmware for better performance from Primare's XMOS application.

DAC
The NP30 uses a SRC4392 sample rate converter in conjunction with a Burr Brown PCM1792 24/192 DAC, running continually at 24/192. Incoming data at rates other than 24/192 are up-sampled to 24/192 to ensure the optimal operation of the DAC.

Volume Control
Digital volume with default, fixed or variable selection is possible. The VC allows direct connection to a pair of active loudspeakers or power amplifier.

Primare Control App available for iPhone/iPad and Android.
The Primare App allows you to choose and play media (including Internet radio) at resolutions up to 24bit/192kHz from network shared music sources and storage through NP30, PRE60 and from I32 and PRE32 with installed MM30 board.
Primare App will:
Establish network connections and play from any network shared music source
Play from USB-A, (stick, iPhone etc.)
Play files up to 24bit/192 kHz resolution
Play internet radio (vTuner –http://www.vtuner.com)
Display and save playlists
Display format, bit rate and sample rate of the song playing
Provide fast forward and back navigation of the song playing
Provide volume control including default at start-up (fixed or variable on NP30) more….
Allow source selection of devices connected to inputs of the I32, PRE32, PRE60 and NP30
Allow the renaming of inputs on I32, PRE32 and PRE60
Give the I32, PRE32, PRE60 or NP30 a name on the network
Manage software updates on I32, PRE32, PRE60 and NP30

Please download the guide here:
http://www.primare.net/product.asp?ProductID=59&d=5&c=1

Using a standard UPnP App
Any standard UPnP application on Android or IPhone/IPad can be used to access the streaming functionality. However, while UPnP will allow you to browse a media server with playlists, tracks, album-art and transport controls, some features are not available (USB-drive, IPod, IPad, IPhone-USB devices). Also no radio is supported with a standard UPnP App.

Firmware upgrade
If a network connection is available, the NP30 can connect to a Primare server to download new firmware. The Primare App offers an auto-upgrade feature, which automatically notifies the user when an upgrade is available. Simply activate the upgrade from the App. New Firmware can also be upgraded using a USB flash memory.

Bluetooth
For compatibility with Primare's high-performance audio design, the Bluetooth receiver-only module supports high quality Bluetooth via aptX (android), AAC, MP3 but rather than use an integrated DAC (as employed by other Bluetooth upgrades) the output is fed to the product's own Sample Rate Converter and up-sampled to 192kHz for optimum performance through the existing high resolution DACs. In this way Primare's Bluetooth the MM30 provides excellent Bluetooth sound quality to the convenience of wireless Bluetooth connections.

NP30 Features and Specifications
Audio formats: WAV, LPCM, AIFF, FLAC, ALAC, MP3, MP4 (AAC), WMA, OGG,
Sample rates: 32-192kHz
WLAN: b, g, n mode; WEP (64 and 128Bit), WPA &WPA2 (TKIP & AES)
Connections output XLR, RCA, Digital (192 kHz), IRout, TRIGout
Connections input 3x optical (96kHz)
1x SPDIF (192kHz)
USB-A
USB-B (192kHz)
WLAN (48kHz)
LAN (192kHz)
Weight 8.5 kg
Dimensions 430 x 370 x 95 mm
Power consumption Max 20W
Standby 0.5W
Output impedance RCA 100 Ohm; XLR 110 Ohm
XLR/RCA output both 2.2V
Signal to Noise 120dB