K2 Summit 3G+

4K UHD/3G/HD/SD Media Server & Storage Platform

The K2 media server and storage platform from Grass Valley, a Belden Brand, is the most extensive and flexible line of media servers, storage and integrated playout devices in the industry. Leveraging open-standard IT components and technologies, the K2 platform brings the benefits of mainstream computer industries to the broadcast enterprise — including the latest advances in processing power and storage capacity with ease of integration, and streamlined operation and management, for formats ranging from SD to 4K UHD.

K2 systems can be deployed in a variety of configurations depending on user requirements. Systems are scalable for more channels, bandwidth and storage capacity. Systems can be designed with various levels of redundancy.

The K2 platform’s open storage architecture easily integrates with Grass Valley and many third-party products and applications. Its file system is compatible with QuickTime and MXF to enable easy integration with NLEs, including Grass Valley EDIUS and popular third-party solutions including Apple Final Cut Pro, Adobe Premiere Pro CC and Avid Media Composer/NewsCutter. The open file system provides interoperability with archive and other smart appliances via industry-standard formats including MXF, QuickTime and GXF.

Crucial to a file-based infrastructure is bandwidth. The K2 platform has the highest bandwidth capability of any system in the industry, and is proven at the largest real-world system installations. Equally important, the K2 platform features a Quality of Service algorithm with dynamic allocation of bandwidth where it’s needed, guaranteeing that on-air channels never drop a frame of video. High-bandwidth FTP capabilities permit the K2 platform to adapt to a wide variety of workflows.

With hundreds of K2 installations around the world, it is a solution proven in many 24/7/365 mission-critical environments including ingest, playout, news and live event production.

<table>
<thead>
<tr>
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<th>K2 Summit 3G</th>
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<tr>
<td>System Drive</td>
<td>mSATA</td>
<td>M.2</td>
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<tr>
<td>Internal HD Storage</td>
<td>7.2 TB</td>
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<tr>
<td>Operating System</td>
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<td>Format Data Drives</td>
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<td>Multiviewer Port</td>
<td>VGA</td>
<td>Display Port</td>
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<tr>
<td>10 Gb/s Location</td>
<td>Card Insertion</td>
<td>Motherboard</td>
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The **K2 Summit 3G+ Production Client** is optimized for a broad range of production and broadcast applications and is the only server that supports end-to-end SD/HD/3G/4K UHD workflows in DVCPRO, MPEG-2, AVC-Intra, H.264/AVCHD, DNxHD and ProRes formats.

The Grass Valley K2 Summit 3G+ Production Client is a major enhancement to the K2 media server family. It is optimized for production, live event workflows and broadcast applications. Teamed with the K2 Dyno Replay Controller, K2 Summit 3G+ offers an ideal solution for live events such as sports and concerts, studio production, news and any application that requires quick access to recorded media.

### K2 Summit 3G+ Production Client

The K2 Summit 3G+ Production Client is a 2 RU platform with redundant hot-swappable power supplies, as well as redundant Ethernet ports. Included with the 3G+ is a new modern OS, Windows 10, that providers users with a more reliable, modern day operating system. To this architecture Grass Valley has added its Emmy® Award-winning core video technology. Each channel is built around a high-performance RISC processor, an embedded real-time operating system, and performs video/audio processing in the robust and secure manner needed for a 24/7, frame-accurate environment.

### K2 Production Features

The K2 Summit 3G+ Production Client has been specifically designed for the needs of SD/HD/3G/4K UHD live event productions such as sporting events where instant replays need to be available immediately at the push of a button. Highlights, playlists and resources such as record channels from multiple systems can be shared by users. All channels are bidirectional and can easily and quickly switch between record and play.

#### ChannelFlex

ChannelFlex doubles the K2 Summit 3G+’s capability from supporting four video streams to eight video streams in application-specific configurations:

- Record up to 8 camera feeds in DV, XDCAM HD, AVC-Intra, DNxHD or ProRes formats
- Record up to two 2X/3X super slo-mo cameras in DVCPRO HD, AVC-Intra or DNxHD formats
- Record up to four 3D cameras or video+key pairs: HD in AVC-Intra/SD in IMX30
- Play up to four 3D files or video+key pairs: HD in AVC-Intra/SD in IMX30

#### Proxy Encoding

Low-resolution proxy versions of media can be encoded and either streamed over IP networks or stored for use in distributed workflows. This enables extending access to more users to produce content and to remotely monitor playback channels while conserving system resources.

#### Flexible Monitoring Options

With the built-in VGA multiviewer, all four channels can be monitored in normal mode or up to eight streams when ChannelFlex is in operation. An SDI monitor output is available with timecode burn-in for each channel. A user-definable text overlay option is available for both monitor displays, enabling various information such as channel/clip name, transport controls, play speed, audio meters and more to be displayed in any location with various text sizes and colors. A truly unique feature allows a streaming proxy of either input or output video and audio to allow monitoring using an IP network and a standard client viewer.
KEY FEATURES

- **Built-in Mix Effects**
  For generating quick highlight packages, often all that is required are simple dissolves or fades between two clips. Each channel has this capability built-in (most servers require two channels to do a mix effect). An integrated mixer dissolves between two clips or to a matte color. The color and transition times are user-definable.

- **Multiple Format Capabilities**
  The K2 Summit 3G+ Production Client is the only server that provides agile codecs enabling playback of SD, HD, 3G and 4K UHD content seamlessly on the same timeline with any supported format (DV/DVCPRO, MPEG-2, AVC-Intra, H.264 or DNxHD). With seamless and automatic up/down/cross-conversion of clips to your desired output resolution, the K2 Summit 3G+ Production Client provides full support for all SD and HD formats. The K2 Summit 3G+ Production Client also supports the industry-wide AFD standard for aspect ratio conversion. As a result, you only need to store a single-format version of a clip in order to play it out in the appropriate SD or HD format. The K2 Summit 3G+ Production Client is capable of simultaneously encoding a low-resolution proxy along with the high-resolution recording to extend workflows to the user’s desktop. The K2 Summit 3G+ Production Client features smooth, high-quality, bidirectional, slow-motion playback and enhanced jog/shuttle control for all formats including MPEG-2 Long GOP. Playback trails recording by a fraction of a second so replay is virtually instantaneous**. Slow-mo playback and freeze frames are jitter-free at even the slowest speeds due to the use of line interpolation technology.

- **Audio and Closed Caption/Teletext Multilingual Support**
  Each video channel has up to eight AES/EBU or 16 embedded channels of PCM or compressed audio. For easy track management, each audio track can be identified with a language descriptor*. Additional audio features include scrub audio up to 2X, audio meters for each channel, an internal audio delay capability and the ability to adjust levels during recording or playback. It also performs an audio ramp down/ramp up between clips to eliminate audio clicks and/or pops. Additional audio tracks can be imported into a clip* to easily add additional languages. In addition multiple closed captions or teletext files can be imported from third-party captioning editors for additional language support.

* Requires AppCenter Pro or Elite.
** Requires AppCenter Elite.

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K2 Summit 3G+ 4K UHD/3G/HD/SD Media Server & Storage Platform

DATASHEET

K2 Summit 3G+ Production Clients with Internal Storage (in hours)

<table>
<thead>
<tr>
<th>DV 25</th>
<th>DV 50</th>
<th>DV 100</th>
<th>AVCI 50</th>
<th>AVCI 100</th>
<th>6x SSM</th>
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<td>57</td>
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</tr>
<tr>
<td>800 GB RAID-5 (10)</td>
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<td>114</td>
<td>255</td>
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<td>22</td>
</tr>
<tr>
<td>1.6 TB RAID-5 (10)</td>
<td>801</td>
<td>432</td>
<td>227</td>
<td>509</td>
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<td>45</td>
</tr>
</tbody>
</table>

www.grassvalley.com
K2 Summit 3G+ Production Client – 2 RU platform with 2 bidirectional HD/SD channels. Supports DV, DVCPro, DVCPro 50, DVCPro HD and HD/SD MPEG-2 record and agile playback of DV, DVCPro, DVCPro 50, DVCPro HD, DNxHD, ProRes and HD/SD MPEG-2 playback. Includes dual hot-swappable power supplies, hot-swappable fans, and AppCenter control and configuration application.

K2-XDP3-02
K2 Summit 3G+ Production Client – 2 RU platform with 2 bidirectional HD/SD channels. Supports DV, DVCPro, DVCPro 50, DVCPro HD and HD/SD MPEG-2 record and agile playback of DV, DVCPro, DVCPro 50, DVCPro HD, DNxHD, ProRes and HD/SD MPEG-2 playback. Includes dual hot-swappable power supplies, hot-swappable fans, and AppCenter control and configuration application.

K2-XDP3-04

Options
K2-XDP3-10-S400R5
K2 Summit 3G+ internal media storage, includes 10 x 400 GB SSD media drives and RAID controller. Configured as RAID-5 (8 data/2 parity). Select one internal media storage option only.

K2-XDP3-10-S800R5
K2 Summit 3G+ internal media storage, includes 10 x 800 GB SSD media drives and RAID controller. Configured as RAID-5 (8 data/2 parity). Select one internal media storage option only.

K2-XDP3-10-S1600R5
K2 Summit 3G+ internal media storage, includes 10 x 1.6 TB SSD media drives and RAID controller. Configured as RAID-5 (8 data/2 parity). Select one internal media storage option only.

K2-XDP3-AVC-2CH
K2 Summit 3G+ 2-channel AVC-Intra codec and H.264 playback license. Includes AVC-Intra level 50 and 100 and encoding and decoding and H.264 L4.2 AVCHD playback. Two required for 4-channel model (K2-XDP2-04) Factory installed.

K2-XDP3-MPG2-MC
K2 Summit 3G+ MPEG-2 multicam encoding factory option. Adds the ability to record up to 4 video streams per codec module using MPEG-2 compression when used in ChannelFlex mode. Includes hardware and additional MPEG encoding license. Two K2-XDP3-MPG2 options are required for the K2-XDP3-04 and enables up to 8 video streams to be recorded. Also requires factory installed AppCenter Elite license (see K2-APPCTR-ELTE-FO below).

K2-APPCTR-PRO-FO
K2 AppCenter Pro for the K2 Summit Platform extends the feature set of standard AppCenter and includes such features as audio track tagging, super out and proxy encoding licenses for 4 channels of low-resolution proxy generation. Factory installed.

K2-APPCTR-ELTE-FO
K2 AppCenter Elite for the K2 Summit Platform extends the feature set of standard AppCenter and includes all AppCenter Pro features plus ChannelFlex and Proxy encoding licenses for 8 channels of low-resolution proxy generation. ChannelFlex includes 2X and 3X super slo-mo record, key plus fill record and play, and multicam recording. Factory installed.

Field Kits
K2-APPCTR-PRO-FK
K2 AppCenter Pro for the K2 Summit Platform extends the feature set of standard AppCenter and includes such features as audio track tagging and proxy encoding licenses for 4 channels of low-resolution proxy generation. Field kit.

K2-APPCTR-ELTE-FK
K2 AppCenter Elite for the K2 Summit Platform extends the feature set of standard AppCenter and includes all AppCenter Pro features plus ChannelFlex and Proxy encoding licenses for 8 channels of low-resolution proxy generation. Factory installed.

K2-XDP3-AVC-2CH-FK
K2 Summit 3G+ 2-channel AVC-Intra codec and H.264 playback license. Includes AVC-Intra level 50 and 100 and encoding and decoding and H.264 L4.2 playback. Two required for 4-channel model (K2-XDP3-04). Field kit.

K2-XDP3-MPG2-MC-FK
K2 Summit 3G+ MPEG-2 multicam encoding field kit. Adds the ability to record up to 4 video streams per codec module using MPEG-2 compression when used in ChannelFlex mode. Includes hardware and additional MPEG encoding license. Two K2-XDP3-MPG2-FK kits are required for the K2-XDP3-04 and enables up to 8 video streams to be recorded. Also requires AppCenter Elite license (see K2-APPCTR-ELTE-FK above).

K2-XDP3-DNX-2CH-FK
K2 Summit 3G+ DNxHD license. Includes DNxHD encoding and decoding. Two required for 4-channel model (K2-XDP3-04). Field kit.

Field Kits
K2-APPCTR-PRO-FK
K2 AppCenter Pro for the K2 Summit Platform extends the feature set of standard AppCenter and includes such features as audio track tagging and proxy encoding licenses for 4 channels of low-resolution proxy generation. Field kit.

K2-APPCTR-ELTE-FK
K2 AppCenter Elite for the K2 Summit Platform extends the feature set of standard AppCenter and includes all AppCenter Pro features plus ChannelFlex and Proxy encoding licenses for 8 channels of low-resolution proxy generation. Field kit.

K2-XDP3-AVC-2CH-FK
K2 Summit 3G+ 2-channel AVC-Intra codec and H.264 playback license. Includes AVC-Intra level 50 and 100 and encoding and decoding and H.264 L4.2 AVCHD playback. Two required for 4-channel model (K2-XDP3-04). Field kit.

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K2-XDP3-DNX-2CH-FK
K2 Summit 3G+ DNxHD license. Includes DNxHD encoding and decoding. Two required for 4-channel model (K2-XDP3-04). Field kit.

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K2-XDP3-DNX-2CH-FK
K2 Summit 3G+ DNxHD license. Includes DNxHD encoding and decoding. Two required for 4-channel model (K2-XDP3-04). Field kit.

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K2-XDP3-AVC-2CH-FK
K2 Summit 3G+ 2-channel AVC-Intra codec and H.264 playback license. Includes AVC-Intra level 50 and 100 and encoding and decoding and H.264 L4.2 AVCHD playback. Two required for 4-channel model (K2-XDP3-04). Field kit.

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K2-XDP3-DNX-2CH-FK
K2 Summit 3G+ DNxHD license. Includes DNxHD encoding and decoding. Two required for 4-channel model (K2-XDP3-04). Field kit.