



## Newman Ultra — Smart TV SoC worldwide H.264 decoder + Faroudja video/audio processing

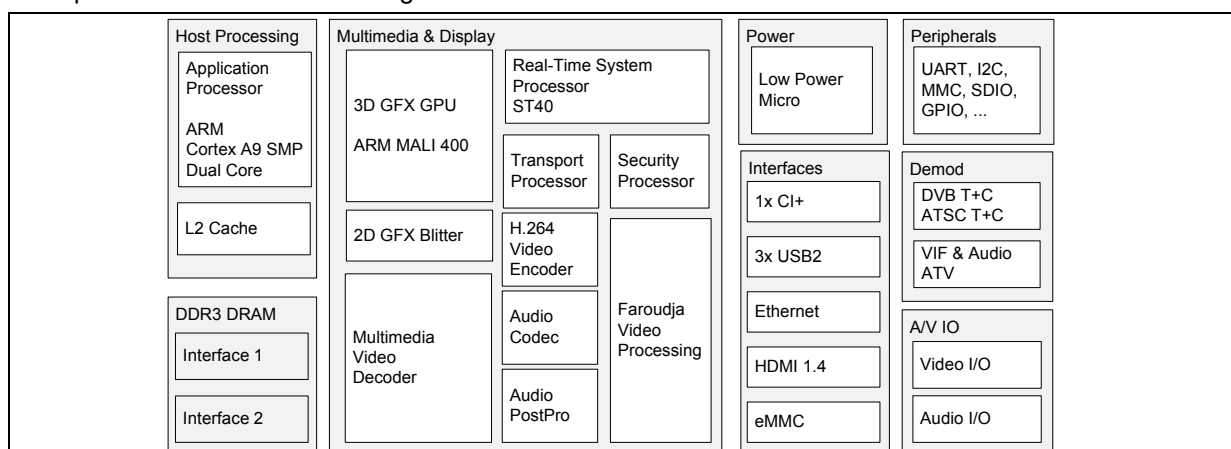
Data brief

### Features

- Dual ARM® Cortex™ A9 SMP @ 1.2 GHz --> Ultimate applications and connected TV experience
- 1 Mbyte L2 cache --> Best-in-class Smart TV applications performance
- High-performance ARM MALI-400 4PP 3D GPU (OpenGL ES 2.0/OpenVG 1.1) --> Innovative user-interface, Flash applications, and unprecedented gaming capabilities
- Latest generation “Delta” video decoder with dedicated ST231 DSP and support for all possible video codec and standards
- Dual ST231 @ 600 MHz for audio decode and post-processing
- Field-proven embedded EU/US demodulators, with support for DVB-T/C and ATSC/QAM
- Worldwide analog audio/video demodulator (VIF + SIF demod)
- Extensive digital connectivity
  - HDMI 1.4a/DP 1.2 combo receiver
  - Second HDMI 1.4a receiver
  - Triple USB, eSATA, and PCIe
  - Ethernet MAC
- Picture-in-Picture with dual HD decode capabilities --> Flexible viewing
- Extensive legacy analog A/V inputs/output --> End-user convenience for easy to connect equipment
- Advanced security with trusted CPU and DRM support including HDCP, AES/3DES, CI/CI+ and all major CA vendors
- Faroudja® video processing --> Main video bringing vivid picture quality for the consumer
- 14/16-bit Advanced Color Management (3D) and Contrast processing --> Ultimate video quality for OEMs and consumers
- Award-winning DCDi® and MADi technologies --> Crystal-clear rendering on 1080p displays
- 60 Hz 3D line-interleaved embedded, with support for all major 3DTV formats
- 64-bit DDR3 1866 Mbps DRAM interface --> Performance and flexibility with DRAM ICs
- Dual high-speed 10-bit LVDS output --> Convenient connectivity to panel TCON
- User Kernel API (SDK) accelerates time to market

### Applications

- Connected, high-performance Smart TVs with support for FHD 120 to 240 Hz 3DTVs through external FRC IC



# 1 Description

Newman Ultra is the first member of the Newman family of TV SoCs, part of ST's industry-leading broadcast plus connected-services platforms. The FLI7680 (code-named Newman Ultra) delivers unrivalled performance and represents a giant leap forward in the state-of-the-art in SoCs for Smart TVs. Newman Ultra is a high-performance, flexible, highly integrated and secured Smart TV SoC.

At the heart of this new device, the combination of an ARM® Dual-Cortex™-A9 SMP application processor with 1 MB cache and an ARM® Mali™ 4PP graphics processor, as well as dedicated audio and video decoders, crypto processor and flexible composition engine, deliver uncompromising system performance. With this, Newman Ultra is naturally suited to support the new era of value-added services and ecosystems, such as Google TV™.

Furthermore, its optimized Smart TV architecture allows for smoothly combining multiple video sources and applications in the same screen view, making it the ultimate entertainment platform, where traditional broadcast, video on demand, games, and social networks can coexist, powered by innovative and intuitive user interfaces.

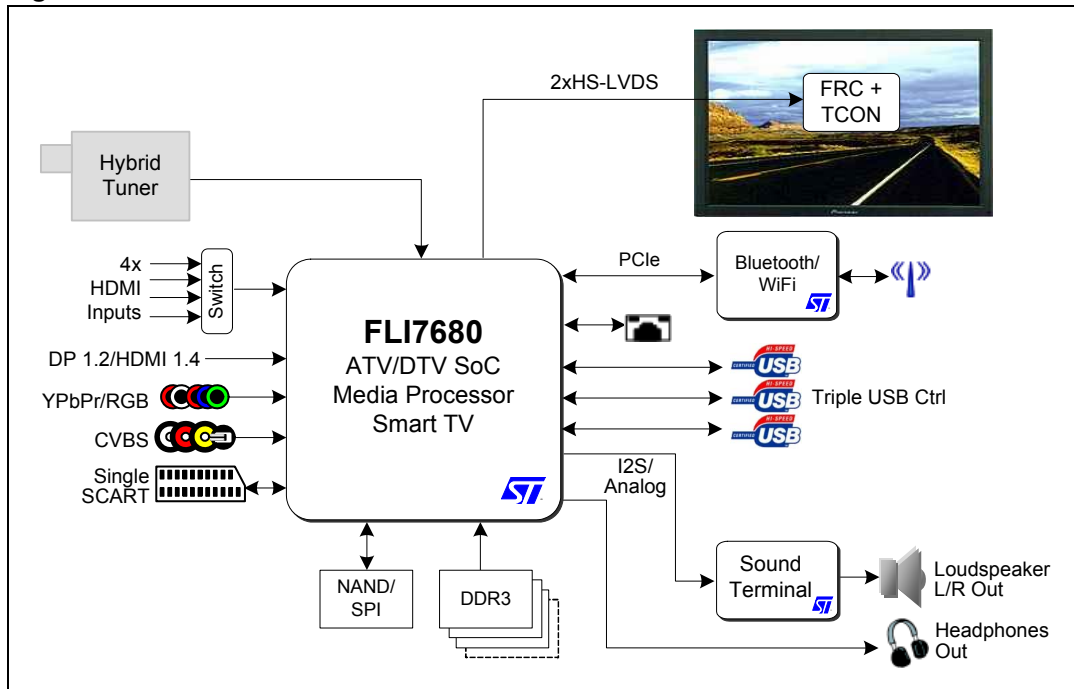
Newman Ultra also continues to innovate audio/video processing under the Faroudja brand to deliver an unmatched front-of-screen experience. Key technology improvements in this area include 14-bit color and contrast processing, upgraded sharpness, upgraded temporal noise reduction, and new MPEG noise reduction. It also supports all connectivity requirements to latest 3D sources and all 3D formats defined in the HDMI 1.4a specification.

Along with an embedded field proven EU/US demodulator allowing cost-effective and easy deployment, it integrates a new dedicated security processor capable of supporting the world's expanding range of security providers' schemes to ensure the ultimate protection for premium content and personal data.

ST's strong and extensive relationships with popular Internet TV and social service providers give TV OEMs a fast ramp-up to deliver compelling value-add content to the living room, and ST's long term partnership with leading CA vendors makes it the perfect SoC for secured content delivery to the end-user.

## 2 Application overview

Figure 1. Newman Ultra solution



### 3 Ordering information

Table 1. Order codes

Part number	Description
FLI7680	FCTEBGA 35 x 35 mm

In order to meet environmental requirements, ST offers these devices in different grades of ECOPACK<sup>®</sup> packages, depending on their level of environmental compliance. ECOPACK<sup>®</sup> specifications, grade definitions and product status are available at: [www.st.com](http://www.st.com). ECOPACK<sup>®</sup> is an ST trademark.

## 4 Revision history

**Table 2. Document revision history**

Date	Revision	Changes
21-Dec-2011	1	Initial release.
06-Jan-2012	2	Changed cover bullet to dual HS LVDS output, updated cover block diagram, section 1 Description, and Figure 1

**Please Read Carefully:**

Information in this document is provided solely in connection with ST products. STMicroelectronics NV and its subsidiaries ("ST") reserve the right to make changes, corrections, modifications or improvements, to this document, and the products and services described herein at any time, without notice.

All ST products are sold pursuant to ST's terms and conditions of sale.

Purchasers are solely responsible for the choice, selection and use of the ST products and services described herein, and ST assumes no liability whatsoever relating to the choice, selection or use of the ST products and services described herein.

No license, express or implied, by estoppel or otherwise, to any intellectual property rights is granted under this document. If any part of this document refers to any third party products or services it shall not be deemed a license grant by ST for the use of such third party products or services, or any intellectual property contained therein or considered as a warranty covering the use in any manner whatsoever of such third party products or services or any intellectual property contained therein.

**UNLESS OTHERWISE SET FORTH IN ST'S TERMS AND CONDITIONS OF SALE ST DISCLAIMS ANY EXPRESS OR IMPLIED WARRANTY WITH RESPECT TO THE USE AND/OR SALE OF ST PRODUCTS INCLUDING WITHOUT LIMITATION IMPLIED WARRANTIES OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE (AND THEIR EQUIVALENTS UNDER THE LAWS OF ANY JURISDICTION), OR INFRINGEMENT OF ANY PATENT, COPYRIGHT OR OTHER INTELLECTUAL PROPERTY RIGHT.**

**UNLESS EXPRESSLY APPROVED IN WRITING BY TWO AUTHORIZED ST REPRESENTATIVES, ST PRODUCTS ARE NOT RECOMMENDED, AUTHORIZED OR WARRANTED FOR USE IN MILITARY, AIR CRAFT, SPACE, LIFE SAVING, OR LIFE SUSTAINING APPLICATIONS, NOR IN PRODUCTS OR SYSTEMS WHERE FAILURE OR MALFUNCTION MAY RESULT IN PERSONAL INJURY, DEATH, OR SEVERE PROPERTY OR ENVIRONMENTAL DAMAGE. ST PRODUCTS WHICH ARE NOT SPECIFIED AS "AUTOMOTIVE GRADE" MAY ONLY BE USED IN AUTOMOTIVE APPLICATIONS AT USER'S OWN RISK.**

Resale of ST products with provisions different from the statements and/or technical features set forth in this document shall immediately void any warranty granted by ST for the ST product or service described herein and shall not create or extend in any manner whatsoever, any liability of ST.

ST and the ST logo are trademarks or registered trademarks of ST in various countries.

Information in this document supersedes and replaces all information previously supplied.

The ST logo is a registered trademark of STMicroelectronics. All other names are the property of their respective owners.

© 2012 STMicroelectronics - All rights reserved

STMicroelectronics group of companies

Australia - Belgium - Brazil - Canada - China - Czech Republic - Finland - France - Germany - Hong Kong - India - Israel - Italy - Japan - Malaysia - Malta - Morocco - Philippines - Singapore - Spain - Sweden - Switzerland - United Kingdom - United States of America

[www.st.com](http://www.st.com)