Claims

1. An embedded system for video processing with hardware for realising the following functions:

a) a server function, wherein for realising the server function the following functions are realised:

a1) receiving of at least one image and at least one audio-data stream;

a2) compression of the at least one of the image and audio-data streams yielding in each case a combined image and audio-data stream;

a3) output of at least one of the combined image and audio-data streams via a protocol based network;

b) a client function, wherein for realising the client function the following functions are realised:

b1) receiving of the at least one combined data stream from the protocol based network;

b2) decompression of the at least one combined data stream;

b3) output of the combined decompressed image- and audio-data stream;

c) wherein the hardware is designed in such a way to

c1) check individual security utilizing a hardware serial number saved in the system and an individual activation code and

c2) monitor the individual activation code by monitoring and comparison of the individual activation code to a list of activation codes wherein the hardware is adapted in such a way to compress and decompress the at least one combined image- and audio-data stream with at least 60 frames per second and a resolution of at least 1920x1080 pixels without data jam;

wherein only a single type of said embedded system is required physically for security with respect to the at least one combined data stream, but also with respect to product piracy;

wherein the hardware for realising the server function and the client function is arranged on a joint circuit board, where the joint circuit board is designed as a PC plug-in card and is displayable in a PC operating system environment as a network card;

wherein the hardware further comprises a Field Programmable Gate Array (FPGA) that is individually encrypted,

wherein the following functions are provided by the FPGA:

a) connection to the protocol based network;

b) firewall that filters IP, Port, and Mac addresses according to a rule table;

c) encryption of the combined data stream to be output, if the embedded system operates as a server; and

d) decryption of the at least one combined data stream, if the embedded system operates as a client; and

wherein the at least one image data stream received if having been recorded by interlaced scanning is output as a progressive scan.

2. An embedded system according to claim 1, **characterised in that** the hardware monitoring the individual activation code is adapted to emit an activation code warning signal or an activation code approval signal.

3. An embedded system according to claim 1, **characterised by:**

a) receiving more than one combined data stream via the protocol based network;

b) decompression of more than one combined data stream;

c) scaling and/or rotating and/or merging and/or cross-fading of more than one decompressed image- and audio-data stream;

d) joint output of more than one decompressed image- and audio-data stream for simultaneous display on a monitor; and

e) separate output of one or more combined data streams on several monitors, which are arranged as a video wall.

4. An embedded system according to claim 1, **characterised by** output of control signals for remote control of connected devices.

5. An embedded system according to claim 1, **characterised in that** the hardware comprise a Digital Signal Processor (DSP), wherein the following functions are provided by the DSP:

a) compression of at least one of the image- and audio-data streams yielding in each case the at least one combined data stream, if the embedded system operates as a server;

b) decompression of the at least one combined data stream, if the embedded system operates as a client; and

c) scaling and output of the decompressed image- and audio-data stream via an interface, if the embedded system operates as a client.