

# OEM Developer Solutions

Software Developers Kit

# SD

SD|Greed  
SD|Quad Ingest  
SD|Quad Egress  
SD|Dual Link Pro  
SD|Ingest Pro  
SD|Lite Pro  
Iridium AV Pro  
SD|Single Link Pro



**bluefish444**  
THE PROFESSIONALS' CHOICE





# The Big Fish

in Quad Stream Powered I/O for Live Broadcast



## Standard Definition SDI I/O

### \*SD|Dual Link Pro \*SD|Dual Link Pro-e

Dual Link & Single Link I/O

- 12/10 bit SD SDI I/O • Dual Link 4:4:4, 4:4:4:4 I/O
- Video and Key 4:2:2:4 (YUV) I/O • 2 X Single Link 4:2:2 (YUV) I/O
- 2 X Independent video streams I/O • 16 Channels of embedded audio I/O • HANC I/O • VANC I/O • VBI I/O • Real-time hardware colour space conversion • Hardware overlay for internal keying • 2 X General Purpose I/O • LTC I/O • 4 X RS 422 • Bypass Relays • Genlock • PCI 32bit 66 MHz • PCIe 1 lane

### \*SD|Greed \*SD|Greed-e

Dual Link & Single Link I/O with Digital Audio I/O, Analog Video and Audio I/O

- 12/10 bit SD SDI I/O • Dual Link 4:4:4, 4:4:4:4 I/O • Video and Key 4:2:2:4 (YUV) I/O • 2 X Single Link 4:2:2 (YUV) I/O • 2 X Independent video streams I/O • 12 bit Component RGB/YUV Output • 12 bit Component YUV Input • 12 bit Composite I/O • 12 bit S-Video I/O • 6 Channels of AES/EBU audio I/O • 8 channels of unbalanced AES-3id BNC I/O • Polyphase audio sample rate converters • 2 Channels of balanced XLR analog audio I/O • 2 Channels of unbalanced RCA analog audio I/O • Audio sample rate converters • 16 Channels of embedded audio I/O • HANC I/O • VANC I/O • VBI I/O • Real-time hardware colour space conversion • Hardware overlay for internal keying • 2 X General Purpose I/O • LTC I/O • 4 X RS 422 • Bypass Relay options available • Genlock • PCI 32bit 66 MHz • PCIe 1 lane

### \*SD|Quad Ingest

Dual Link, Single Link & Quad Input



- 12/10 bit SD SDI Input
- Dual Link 4:4:4, 4:4:4:4 Input
- Video and Key 4:2:2:4 Input
- 4 X Single Link 4:2:2 Inputs
- 4 X Independent video input streams
- 4 X 16 Channels of embedded audio Input
- HANC Input
- VANC Input
- VBI Input
- Real time programmable colour space conversion on all 4 Inputs
- 2 X General Purpose I/O
- LTC I/O
- 4 X RS 422
- PCI 32bit 66 MHz

### \*SD|Quad Egress

Dual Link, Single Link & Quad Output



- 12/10 bit SD SDI Output
- Dual Link 4:4:4, 4:4:4:4 Output
- Video and Key 4:2:2:4 Output
- 4 X Single Link 4:2:2 Outputs
- 4 X Independent video Output streams
- 4 x 16 Channels of embedded audio Output
- HANC Output
- VANC Output
- VBI Output
- Real-time programmable colour space conversion on all 4 Outputs
- 2 X General Purpose I/O
- LTC I/O
- 4 X RS 422
- Genlock
- PCI 32bit 66 MHz

### SD|Lite Pro SD|Lite Pro-e

Dual Link & Single Link Output



- 12/10 bit SD SDI Output
- Dual Link 4:4:4, 4:4:4:4 Output
- Video and Key 4:2:2:4 Output
- 2 X Single Link 4:2:2 Outputs
- 2 X Independent video Output streams
- 16 Channels of embedded audio Output
- HANC Output
- VANC Output
- VBI Output
- Real-time programmable colour space conversion
- 2 X General Purpose I/O
- LTC I/O
- 4 X RS 422
- Genlock
- PCI 32bit 66 MHz
- PCIe 1 lane

### Iridium AV Pro Iridium AV Pro-e

Dual Link & Single Link Output with Audio



- 12/10 bit SD SDI Output
- Dual Link 4:4:4, 4:4:4:4 Output
- Video and Key 4:2:2:4 Output
- 2 X Single Link 4:2:2 Outputs
- 2 X Independent video Output streams
- 6 Channels of AES/EBU Output
- 8 Channels of AES 3ID Output
- 16 Channels of embedded audio Output
- HANC Output
- VANC Output
- VBI Output
- 12 bit Component RGB/YUV Output
- 12 bit Composite Output
- 12 bit S-Video Output
- Real-time programmable colour space conversion
- 2 X General Purpose I/O
- LTC I/O
- 4 X RS 422
- Genlock
- PCI 32bit 66 MHz
- PCIe 1 lane

### SD|Single Link Pro SD|Single Link Pro-e

Single Link I/O with Digital Audio I/O and Analog I/O



- 12/10 bit SD SDI I/O
- 12 bit Component RGB/YUV Output
- 12 bit Component YUV Input
- 12 bit Composite I/O
- 12 bit S-Video I/O
- 6 Channels of AES/EBU I/O
- 8 channels of unbalanced AES 3ID BNC I/O
- Audio sample rate converters
- 16 Channels of embedded audio I/O
- HANC I/O
- VANC I/O
- VBI I/O
- Real-time programmable colour space conversion
- 2 X General Purpose I/O
- LTC I/O
- 4 X RS 422
- Bypass Relay
- Genlock
- PCI 32bit 66 MHz
- PCIe 1 lane

### SD|Ingest Pro SD|Ingest Pro-e

Dual Link & Single Link Input



- 12/10 bit SD SDI Input Dual Link 4:4:4, 4:4:4:4 Input
- Video and Key 4:2:2:4 Input
- 2 X Single Link 4:2:2 Inputs
- 2 X Independent video Input streams
- 16 Channels of embedded audio Input
- HANC Input
- VANC Input
- VBI Input
- Real-time programmable colour space conversion
- 2 X General Purpose I/O
- LTC I/O
- 4 X RS 422
- PCI 32bit 66 MHz
- PCIe 1 lane

\*Built on Bluefish 444 "Quad Stream Technology Platform"

# Bluefish444 Software Developers Kit

The Bluefish444 SDK is a software development tool designed by software developers for software developers, who wish to integrate Bluefish444 hardware into their solution.

The Bluefish444 SDK provides a simple, consistent and extensible interface to all Bluefish444 hardware products. It provides a number of useful abstractions and interfaces designed to relieve the developer of direct hardware involvement freeing them to concentrate on getting to market. The SDK interfaces are implemented as a C++ class and also as COM Interfaces. The SDK can be used with Visual Studio 2003 and Visual Studio 2005. SDK's are also available for Linux and Mac OS X.

## Features of the Bluefish444 OEM product range

- Windows 2000, 2003 server, Windows XP and Vista support
- 64 bit Linux Support
- OpenML support
- V4L2 support
- Alsa support
- Advanced features like DMA
- Dual Link input and output supporting 4:2:2:4 fill and key and 4:4:4/4:4:4:4
- Internal hardware overlay for logo insertion and branding
- VBI data can be handled for input, modification, output and capture
- Independent dual channel SDI I/O capability
- Hanc I/O
- Vanc I/O
- Full 608 line processing
- Two on board hardware keys, one for each output
- Two general purpose input and output ports
- LTC input and output ports, and RS422 serial ports
- Software control off By-pass relays

## Direct Show Filter Support

Bluefish444 provides video and audio source and render filters that support a range of features such as;

- Dual stream support
- Dual stream also supported in Windows Media Encoder
- Hardware based reference clock
- 8 bit RGB
- 8 & 10 bit YUV
- Capture device interfaces

- Render (playback) filters
- Full duplex support
- Audio and video sync interface
- Cropping
- Dynamic media type playback
- 2/4/6/8 audio channels I/O
- Support for all SD and HD Bluefish444 OEM product range

## SDK Functionality

Our Windows and Linux SDK's share a common API allowing developers to port from one platform to another with greater ease and efficiency. An extensive set of samples and interfaces are provided making integration of Bluefish444 cards with developer applications extremely efficient. Samples and interfaces include;

- Video Capture through system memory
- Video Playback through System Memory single threaded and multi threaded versions
- Full Duplex Audio/Video single threaded and multi threaded versions
- Video Capture with Preview using DirectDraw
- How to create QuickTime and Cineon files using SDK
- How to develop with OpenGL
- How to utilize the DirectShow video render filter
- OpenGL and DirectDraw sample code
- Comprehensive Debug and release driver builds
- Support for COM interface
- Comprehensive source code libraries to reduce development times

## Hardware Compatibility

Bluefish444 are constantly testing and evaluating PC hardware as it becomes available to ensure that the Bluefish444 product range is compatible with a wide range of 3rd party hardware.

The following hardware and manufactures are currently certified for use with the Bluefish444 product range; HP, IBM, DELL, BOXX, XENON, 1BEYOND, TYAN, Super Micro, Intel, IWILL, MSI, NVIDIA, 3DLabs, ATI, Adaptec, ATTO, ADTX, NETCELL, RAIDCORE.

<http://www.bluefish444.com/support/compatibility/hardware/>



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