

<b>PATENT ASSIGNMENT COVER SHEET</b>
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Electronic Version v1.1  
 Stylesheet Version v1.2

EPAS ID: PAT3610968

<b>SUBMISSION TYPE:</b>	CORRECTIVE ASSIGNMENT
<b>NATURE OF CONVEYANCE:</b>	Corrective Assignment to correct the ASSIGNEE'S NAME previously recorded on Reel 027550 Frame 0695. Assignor(s) hereby confirms the ASSIGNEE'S NAME SHOULD BE CSR TECHNOLOGY INC.

**CONVEYING PARTY DATA**

Name	Execution Date
ZORAN CORPORATION	01/01/2012

**RECEIVING PARTY DATA**

<b>Name:</b>	CSR TECHNOLOGY INC.
<b>Street Address:</b>	217 DEVCON DRIVE
<b>City:</b>	SAN JOSE
<b>State/Country:</b>	CALIFORNIA
<b>Postal Code:</b>	95112

**PROPERTY NUMBERS Total: 1**

Property Type	Number
<b>Application Number:</b>	09564091

**CORRESPONDENCE DATA**

**Fax Number:** (610)407-0701

*Correspondence will be sent to the e-mail address first; if that is unsuccessful, it will be sent using a fax number, if provided; if that is unsuccessful, it will be sent via US Mail.*

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**Email:** ephelan@ratnerprestia.com

**Correspondent Name:** RATNERPRESTIA

**Address Line 1:** 1235 WESTLAKES DRIVE, SUITE 301

**Address Line 4:** BERWYN, PENNSYLVANIA 19312

<b>ATTORNEY DOCKET NUMBER:</b>	SIRF-00904
<b>NAME OF SUBMITTER:</b>	KENNETH N. NIGON
<b>SIGNATURE:</b>	/Kenneth N. Nigon/
<b>DATE SIGNED:</b>	11/11/2015

**Total Attachments: 40**

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IN THE UNITED STATES PATENT AND TRADEMARK office

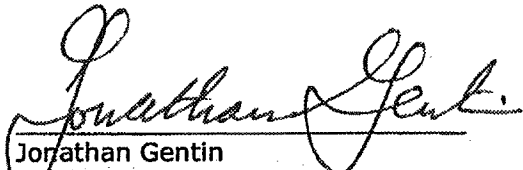
Appl. No: 09/564,091  
Applicant: Li-Huan Jen  
Filed: May 3, 2000  
Title: APPARATUS AND METHOD FOR COUNTING ERRORS IN AN OPTICAL  
COMPACT DISC STORAGE SYSTEM  
T.C./A.U.: 2133  
Examiner: Mujtaba M. Chaudry  
Confirmation No.: 9557  
Docket No.: SIRF-00904

DECLARATION TO CORRECT ASSIGNEE'S NAME

Commissioner:

Pursuant to MPEP § 323.01(b), Assignee requests correction of the recorded assignment document. The recorded document lists the name of the Assignee as "CSR Technology, Inc.". The correct name should be "CSR Technology Inc.". We are submitting this Declaration because the inventor, Li-Huan Jen is not available to initial and date the change.

The person listed below is authorized to sign on behalf of CSR Technology Inc. and acknowledges that any willful false statement made in this declaration is punishable under 18 U.S.C. 1001 by fine or imprisonment of not more than five (5) years, or both.

  
Jonathan Gentin  
Vice President and Deputy General Counsel  
CSR Technology Inc.

Dated: *Sept. 30, 2015*

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501789556 01/18/2012

PATENT ASSIGNMENT

Electronic Version v1.1  
Stylesheet Version v1.1

SUBMISSION TYPE:	NEW ASSIGNMENT
NATURE OF CONVEYANCE:	ASSIGNMENT
CONVEYING PARTY DATA	
Name	Execution Date
Zoran Corporation	01/01/2012
RECEIVING PARTY DATA	
Name:	CSR Technology Inc.
Street Address:	217 Devcon Drive
City:	San Jose
State/Country:	CALIFORNIA
Postal Code:	95112
PROPERTY NUMBERS Total: 612	
Property Type	Number
Patent Number:	5379070
Patent Number:	5416527
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PATENT

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13253922

Application Number:

13276102

CORRESPONDENCE DATA

Fax Number: (703)770-7901

Phone: 650-233-4500

Email: bridgette.mguinness@pillsburylaw.com

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Correspondent Name: Mark J. Danielson Pillsbury Winthrop

Address Line 1: P.O. Box 10500

Address Line 4: McLean, VIRGINIA 22102

ATTORNEY DOCKET NUMBER:

079280-0000007 ZORAN

NAME OF SUBMITTER:

Mark J. Danielson

Total Attachments: 20

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PATENT

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PATENT

REEL: 037088 FRAME: 0794

## PATENT ASSIGNMENT

This Patent Assignment is made as of January 1, 2012 between Zoran Corporation, a corporation organized under the laws of the state of Delaware, USA (hereinafter the "Assignor") and CSR Technology, Inc., a corporation organized under the laws of the state of Delaware, USA (hereinafter the "Assignee").

CSR TECHNOLOGY INC. RECITALS

WHEREAS, this Patent Assignment is made pursuant to that certain Asset Transfer Agreement, dated as of January 1, 2012, entered into between Assignor and Assignee.

WHEREAS, the Assignor is the owner of the patents and patent applications identified in the Schedule I, attached hereto.

WHEREAS, the Assignor and Assignee have agreed on the transfer of the patents and patent applications, the inventions the subject matter thereof and the right to apply for or obtain corresponding patents for the inventions and the priority thereof in any country of the world to the Assignee.

## AGREEMENT

NOW, THEREFORE, for good and valuable consideration, the receipt and sufficiency of which is hereby acknowledged, Assignor hereby assigns to Assignee all of the patents and patent applications, the right, title and interest in the same and all the rights, powers, liberties and immunities arising or to arise therefrom.

The Assignor hereby undertakes to do all acts and execute all documents necessary or desirable for further assuring the title of the Assignee to the patents and patent applications and the inventions the subject matter thereof to the intent that all the patents and patent applications shall be transferred into the name of the Assignee and in particular the Assignor will do all acts, execute all documents and procure the making of any declarations or oaths necessary or required by law and will comply with any other matter or thing for this purpose.

All fees, costs and expenses connected with the transfer of the patents and the patent applications shall be borne and paid by the Assignee.

This Patent Assignment may be executed in counterparts, each of which shall be an original and all of which together shall be considered one and the same instrument.

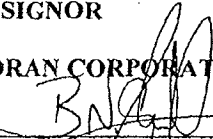
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IN WITNESS WHEREOF, the Assignor and the Assignee have caused this Patent Assignment to be duly executed and delivered by their authorized persons as of the date first written above.

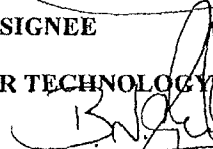
**ASSIGNOR**

**ZORAN CORPORATION**

  
By: Brett Nicholas Gladden  
Its: Vice President + Secretary

**ASSIGNEE**

**CSR TECHNOLOGY INC.**

  
By: Brett Nicholas Gladden  
Its: Secretary

[Signature Page to Patent Assignment Agreement]



Schedule 1  
Patents and Patent Applications

## U.S. Patents

Zoran Corporation - Patents

TITLE	US PATENT NO.
Parallel encoding/decoding of DCT compression/decompression algorithms	5379070
Frequency locking system using sound intermediate frequency (IF) carrier in a television signal	5416527
Digital printing system and process using adaptive compression	5500928
Method and apparatus for communicating formatted data from a mass storage device to a host computer	5535327
Multi-interpretter printer and process including recognition of out-of-bank characters	5555350
Digital printing system and process using compact trapezoidal representations	5555358
System and method for inverse discrete cosine transform implementation	5574661
Anti-loading treatments	5581715
An analog-to-digital converting arrangement	5585796
Image compression coder having improved scale factor control	5594554
System and method for phase lock loop gain stabilization	5625325
Memory utilization for video decoding and display with 3:2 pull-down	5646693
System and method for voltage controlled oscillator automatic band selection	5648744
High-speed data processor and coding method	5668737
Image compression coder having improved bit rate control and block allocation	5699457
Inverse discrete cosine transform processor for VLSI implementation	5701263
Multiple monolithic phase locked loops	5717730
Highly integrated television tuner on a single microcircuit	5737035
Voltage controlled oscillator band switching technique	5739730
System and method for unified DCT and wavelet data coding	5748116
Method for operating a memory	5793663
Free loop interval timer and modulator	5793709
System and method for switching an RF signal between mixers	5805988
Sampling rate conversion using digital differential analyzers	5835160
Interference-free broadband television tuner	5847612
System and method for providing glossy compression and contone/bitonal image conversion	5867632
Optical disk motor servo and method for closed loop speed control	5870363
Method and apparatus for performing concurrent write operations to a single-write-input register file and an accumulator register	5870581
System and method for unified DCT and wavelet data coding	5886651
System and method for tree ordered coding of sparse data sets	5893100
System for providing access to memory in which a second processing unit is allowed to access memory during a time slot assigned to a first processing unit	5894586
Free loop interval timer and modulator	5903522
System and method for performing wavelet-like and inverse wavelet-like transformations of digital data	5909518
Method and apparatus for dynamically constructing a graphic user interface from a DVD data stream	5929857
Self-tuning clock recovery phase locked loop circuit	5933058
Single pass electrophotographic color printing	5946017
Method and apparatus for enabling a user to access data network applications from a television system	5946051
Method and apparatus for performing a masked byte addition operation	5946222
Apparatus and method for reading data from synchronous memory	5946712
System and method for scalable coding of sparse data sets	5949911

## U.S. Patents

TITLE	US PATENT NO.
A method and apparatus for reducing flicker in the television display of network application data	5959680
CMOS I/O circuit with high-voltage input tolerance	5990705
Method and apparatus for refreshing a display screen of a television system with images representing network application data	5990969
Cache memory and method for use in generating computer graphics texture	6002407
A method and apparatus for reducing flicker in the television display of network application data	6005630
Method for operating a memory	6005811
System and method for tree ordered coding of sparse data sets	6009434
Loading mechanism with linear gear bar for an optical disc drive	6011766
CMOS low-voltage comparator	6020768
System and method for unified DCT and wavelet data coding	6031940
Pixel image enhancement system and method	6038348
Processing of disc-drive pickup signals	6041028
Multiresolution compressed image management system and method	6041143
CMOS I/O circuit with high-voltage input tolerance	6043681
Television System for Recovering Digital Data Encoded in a Television Signal	6043848
Method and apparatus for optimizing storage of compressed images in memory	6049330
Method and apparatus for determining discrete cosine transforms using matrix multiplication and modified booth encoding	6052703
Digital decimation filter and method for achieving fractional data rate reduction with minimal hardware or software overhead	6057793
Method and apparatus for enabling a user to access data network applications from a television system	6057888
Method and apparatus for generating non-homogenous fog	6064392
DVD system for seamless transfer between titles on a DVD disc which minimizes memory consumption	6065006
Flicker filter and interlacer implemented in a television system displaying network application data	6072530
Method for operating a memory	6072745
Digital versatile disc playback system with flexible input interface	6081855
Method and apparatus for displaying images having adjacent horizontal blocks with sharp contrast on a display unit of a television system	6091454
Method and apparatus for refreshing a display screen of a television system with images representing network application data	6091457
Method for a highly linear variable-gain low noise amplifier	6100761
Highly linear transconductor with passive feedback	6104242
Method and apparatus for decoding JPEG symbols	6121905
Apparatus for providing a quiet time before analog signal sampling in a mixed signal integrated circuit employing synchronous and asynchronous clocking	6125077
Personal computer based CD-ROM disc drive table of content assembly	6128257
Method and apparatus for a CMOS image sensor with a distributed amplifier	6130423
Method and apparatus utilizing a simplified content-addressable memory for JPEG decoding	6130631
Method and apparatus for accurately recovering the synchronization signals contained in composite video signals	6130719
Method and apparatus for activating buttons from a DVD bitstream using a pointing device	6133920

## U.S. Patents

TITLE	US PATENT NO.
Runout calibration for disc drive system	6137753
System for dynamically optimizing DVD navigational commands by combining a first and a second navigational commands retrieved from a medium for playback	6138175
Internet transaction acceleration	6144402
Digital comb filter having a cascaded integrator stage with adjustable gain	6161118
Broadband frequency synthesizer	6163684
Digital parametric equalizer with symmetrical cut and boost spectrums	6163789
Processing of disc-drive pickup signals	6167011
Circuit and method for selectively delaying electrical signals	6169438
Cable modem tuner	6169569
Integrated circuit varactor having a wide capacitance range	6172378
Document imaging system for autodiscrimination of text and images	6175425
EFM/DVD demodulator	6177892
Circuit and method for generating a clock signal synchronized with time reference signals associated with television signals	6177959
Broadband integrated tuner	6177964
Method and system for determining a correctly selected button via motion-detecting input devices in DVD content with overlapping buttons	6181339
Method and apparatus for clamping image gradients	6184887
Video memory management for MPEG video decode and display system	6198773
High speed dynamic chaining of DMA operations without suspending a DMA controller or incurring race conditions	6199121
Method and apparatus for digitally controlling the capacitance of an integrated circuit device using MOS-field effect transistors	6211745
Method and apparatus for optimizing storage of compressed images in memory	6211864
DC Insensitive clock generator for optical PRML read channel	6215433
Method for a highly linear variable-gain low noise amplifier	6218899
Memory conserving and compression technique-compatible image rotation system	6223181
Digital versatile disc playback system with efficient modification of subpicture data	6229523
Memory saving wavelet-like image transform system and method for digital camera and other memory conservative applications	6229926
System and method for transferring data using separate pipes for command and data	6233628
System and method for unified DCT and wavelet data coding	6236762
Picture and video storage management system and method	6246797
Apparatus and method of processing counter parameters in a digital versatile disc system	6256730
Method and apparatus for enabling a user to access data network applications from a television system	6259487
Host-based caching method and system for copy protected content	6260143
Methods and systems for accessing data from a DVD using a sync detector including a 26 state finite state machine	6263469
Method and apparatus for converting between a logical block address (LBA) and a minute second frame (MSF) location on a data carrier such as a CD-ROM	6265995
Grayscale enhancement system and method	6266154
Method and apparatus for fully integrating a voltage controlled oscillator on an integrated circuit	6268778
Apparatus and method of processing counter parameters in a digital versatile disc system	6272625

## U.S. Patents

TITLE	US PATENT NO.
System and method for performing wavelet and inverse wavelet transformations of digital data using semi-orthogonal wavelets	6275619
Interpolation filter and method for switching between integer and fractional interpolation rates	6275836
Flexible DSP interface circuit	6295408
Method and apparatus for controlling the writing of information onto a storage medium	6298023
Low pass digital filter implemented in a modem of a television system	6307903
Integrated circuit inductor with high self-resonance frequency	6310387
Image rotation assist circuitry and method	6310986
Digital versatile disc playback system with efficient modification of subpicture data	6313850
Servo system for an optical disk drive system	6320828
Method and apparatus for detecting errors in DVD data	6321351
Method and apparatus for digitally controlling the capacitance of an integrated circuit device using MOS-field effect transistors	6323736
Software enlarged tag register and method thereof for noting the completion of a DMA transfer within a chain of DMA transfers	6324598
Computer system and method for tracking DMA transferred data within a read-ahead local buffer without interrupting the host processor	6324599
Efficient image scaling for scan rate conversion	6327000
Method and system for caching a selected viewing angle in a DVD environment	6341330
Memory saving wavelet-like image transform system and method for digital camera and other memory conservative applications	6343155
System and method for encoding a video sequence using spatial and temporal transforms	6347157
Method and apparatus for down conversion of video data	6353459
Method of providing radio frequency isolation of device mesas using guard ring regions within an integrated circuit device	6355537
Programmable circular linked list for sequencing servo signals to minimize latency	6356216
Sampling rate conversion using digital differential analyzers	6356315
DVD system for seamless transfer between titles on a DVD disc which minimizes memory consumption	6356914
Image enhancement method and apparatus for internet printing	6366292
Reed-solomon multiplication method	6378105
Memory efficient method and apparatus for reading and caching of DVD data	6381404
Apparatus and method for receiving data serially for use with an advanced technology attachment packet interface (atapi)	6388590
Apparatus and method for receiving data serially for use with an advanced technology attachment packet interface (atapi)	6388591
Compensation for thermal effects in CD write strategy	6388970
Hybrid wavelet and JPEG system and method for compression of color images	6389160
DC insensitive AGC circuit for optical PRML read channel	6404829
ECC Q-parity checkbyte indexing	6405343
Computer screen image magnification system and method	6407747
Image magnification and selective image sharpening system and method	6411305
Format conversion using patch-based filtering	6411333
Aspect ratio correction using digital filtering	6411334
Method and system for scanning and displaying multiple view angles formatted in DVD content	6415101
Replacement of bad data bit or bad error control bit	6425108

## U.S. Patents

TITLE	US PATENT NO.
Multi-chambered trench isolated guard ring region for providing RF isolation	6429502
Apparatus for automatically processing both encoded and unencoded data	6430530
Stochastic screening method with dot pattern regularity control and dot growth	6433891
Quick identification of defect-uncovering files	6438712
Circuit, disk controller and method for calibrating a high precision delay of an input signal	6445661
Methods and devices to create highlight effects in multimedia data	6456292
Apparatus for processing audio and video DVD data	6459851
Analog optical receiver and variable gain transimpedance amplifier useful therewith	6462327
Method and apparatus for implementing efficient CMOS photo sensors	6465862
Graphics engine architecture	6466220
Integrated DVD/CD controller	6466736
Method and apparatus for efficient memory use in digital audio applications	6466833
System and method for scaling real time video	6493036
Image data interpolation system and method	6496608
System and method for the dynamic thresholding of grayscale image data	6498660
Method for preserving data through a processor softboot	6513075
Method and apparatus for reading data from a disk	6519213
Method and system for pixel clock recovery	6522365
Floating frame for optical storage device loading mechanism	6526015
Pixel image enhancement system and method	6526180
DVD sub-picture decoder with minimal buffering	6526214
Interactive set-top box having a unified memory architecture	6526583
Video processor using shared memory space	6529249
Apparatus for processing memory access requests	6532523
Modified reed-solomon multiplication	6532566
Temperature compensated I.F. amplifier	6535068
Image enhancement method and apparatus for internet printing	6535221
Method and apparatus for writing data in a disk drive	6535470
Method and apparatus for reducing switching noise of a digital volume control	6535611
Enabling accurate demodulation of a DVD bit stream using devices including a SYNC window generator controlled by a read channel bit counter	6536011
Cache memory and method for use in generating computer graphics texture	6545686
Video source with adaptive output to match load	6545707
Anti-loading treatments	6546440
Method and apparatus for run-out correction in a disk drive	6549492
Image compression based on tiled wavelet-like transform using edge and non-edge filters	6549674
Method and article of manufacture for differentiating between a non-volatile memory device and an emulator for purposes of in-circuit programming	6550027
Method and apparatus for audio signal channel muting	6553272
De-Interlacing video images using patch-based pProcessing	6556193
Method and apparatus for calibrating write power	6557126
CD-RW OPC algorithm to minimize statistical fluctuations in power level	6560190
Write strategy and timing	6560672
Method and apparatus for enabling internet access with DVD bitstream content	6564255
Method and apparatus for enforcing DVD parental control across an enterprise	6567979
Printout bin job identification and display	6568538
Simultaneous processing for error detection and P-parity ECC encoding	6574776

## U.S. Patents

TITLE	US PATENT NO.
System and method for providing single pin bypass for multiple circuits	6580313
Multiple source generic memory access interface providing significant design flexibility among devices requiring access to memory	6581145
Dominant error correction circuitry for a Viterbi detector	6581181
Anti-loading treatments	6584527
System and method for encoding video data using computationally efficient adaptive spline wavelets	6587507
Circuit for converting input serial data in a plurality of possible formats into output data in parallel format by interpreting input data format indication information	6587942
Method and apparatus for implementing fault tolerant logic in a storage system	6587973
Apparatus and method for a DC-Insensitive FIR filter for optical PRML channel	6591282
Compact disc subcode packing and error correction detection	6591392
Simultaneous processing for error detection and P-parity and Q-parity ECC encoding	6594796
System and method for performing wavelet and inverse wavelet transformations of digital data using semi-orthogonal wavelets	6600838
DC to DC converter providing stable operation	6608522
Apparatus and method for ideal value estimation in an optical PRML read channel	6611927
Image enhancement filter with adaptive threshold	6614944
Method for processing audio and video DVD data	6618552
Method and apparatus for testing CMOS image sensors	6625558
System and method for a mixer circuit with anti-series transistors	6631257
Method and apparatus for searching in a disk drive	6633520
Controller for ATAPI mode operation and ATAPI driven universal serial bus mode operation and methods for making the same	6633933
Method and apparatus for laser power control during recording	6636468
Digital versatile disc playback system with program chain object searching capabilities	6643450
Detection of EFM stream component widths	6658068
Method and apparatus for recording a compact disc at a sub-1X speeds	6665243
Method and apparatus to initialize a memory with random numbers in a disc drive	6665249
Balanced antenna structure for bluetooth 2.4 GHZ physical region semiconductor integrated circuit	6674409
Method and apparatus for detecting errors in DVD data	6675345
Method and apparatus for filter tuning	6677814
Error diffusion method and apparatus	6678073
Method and apparatus for swapping state data with scan cells	6691268
Dobule F antenna	6697021
System for stop buffering when a count of stored data blocks from a DVD matches an associated data block number of a requested data block set	6701391
Method and apparatus for normalized bit counting	6704387
DVD navigation system with multiple threads	6708334
Ssystem and method for a single conversion tuner	6714776
High speed DVD error correction engine	6718506
Anti-loading treatments	6721828
Pattern detection for computer segments	6725420
Dual mode tuner for co-existing digital and analog television signals	6725463
Apparatus and method for counting errors in an optical compact disc storage system	6738943
Integrated ground shield	6744129

U.S. Patents

TITLE	US PATENT NO.
System and method for establishing the input impedance of an amplifier in a stacked configuration	6744308
Portable thread environment	6748453
Burst error correction on CD DATA	6757861
Method and system for selecting content in a media stream	6760915
System and method for low-noise amplifier with a high-frequency response	6771124
Processing system and method using a multi-dimensional look-up table	6771275
Voltage-controlled oscillator circuit for direct modulation	6774736
Method and apparatus for restarting a write operation in a disk drive	6775216
High-speed phase frequency detection module	6778026
Methods and devices to process graphics and/or video data	6778187
Method and apparatus for automatic slip defect management in a DVD drive	6778480
Burst error correction on DVD data	6779149
System and method for providing fast acquire time tuning of multiple signals to present multiple simultaneous images	6784945
System and Method for the Processing of Scanned Image Data Using a Pixel Window	6785416
Maintenance of data synchronization across large gaps in a data stream	6788753
Cable network interface circuit	6804099
Processing multiple streams of data encoded in respective VBI channels with a shared equalizer	6806910
Multi-resolution image data management system and method based on tiled wavelet-like transform and distinct bitstreams for distinct groups of bit planes	6807308
Method of adaptively enhancing a digital image	6807313
DVD sub-picture decoder with minimal buffering	6807359
Memory efficient method and apparatus for determining run times of DVD titles	6807368
Memory efficient method and apparatus for determining run times of DVD titles	6816667
Optimal location of a digital sync pattern	6826245
Methods and apparatuses for tuning voltage controlled oscillators	6836192
Recovering data encoded in television signals	6839091
System and method for color copy image processing	6839151
Data detection in optical disk drives using decision feedback equalization	6847602
Method and apparatus for providing adaptive control of track servo	6862088
Dual gain amplification to noise amplifier	6864746
Scalable graphics image drawings on multiresolution image with/without image data re-usage	6873343
Control of low frequency noise floor in upsampling	6883013
Highly linear variable gain amplifier	6888406
Low deviation index demodulation scheme	6888905
System and method for reducing second order distortion in electronic circuits	6891435
Edge synchronized phase-locked loop circuit	6891441
In-chip monitoring system to monitor input/output of functional blocks	6898750
Training signal in a single carrier transmission	6901244
System and method for tiled multiresolution encoding/decoding and communication with lossless selective regions of interest via data reuse	6904176
Method and apparatus for seeking the burst cutting area of DVD media	6904232
Portable thread environment	6904595
Method and system for correcting non-linear response in amplifiers	6906594
Current driven polyphase filters and method of operation	6909886



## U.S. Patents

TITLE	US PATENT NO.
System-on-chip controller	6912638
Broadband pin diode attenuator bias network	6919774
Delta-sigma modulator system and method	6920182
System and method for establishing a bias current using a feedback loop	6922556
Portable thread environment	6938246
Wireless cable replacement for computer peripherals	6950859
Apparatus and method for counting error rates in an optical compact disc storage system	6961879
Portable thread environment	6961934
Cable network interface circuit	6963478
Anti-loading treatments	6968404
Linearizer for a pin diode attenuator	6973288
Multi-resolution image data management system and method based on tiled wavelet-like transform and distinct bitstreams for distinct groups of bit planes	6978049
Current driven polyphase filters and method of operation	6993310
Apparatus and method for improved PC audio quality	6999826
Calculating circuit and method for computing an N-th root and a reciprocal of a number	6999986
Methods for auto-separation of texts and graphics	7019761
System and method for discovering frequency related spurs in a multi-conversion tuner	7035614
System and method for pulsed cable telephony	7039062
Method and apparatus for providing focus control on a multi layer disc	7054240
Method and apparatus of packet loss concealment for CVSD coders	7061912
Edge detection and sharpening process for an image	7068852
Interlaced-to-progressive scan conversion based on film source detection	7075581
Software modem architecture	7075914
Method and system for filter tuning using a digital trim value	7078960
Technique for determining the slope of a field pixel	7079190
Broadband integrated tuner	7079195
Digital camera imaging module	7092031
Stochastic screening method with dot pattern regularity control and dot growth	7099049
Training signal in a single carrier transmission	7099628
Apparatus and method for automatically learning control sequences of application programs	7102765
Method and apparatus for using a frequency difference to adjust a target bit for bit counting	7106672
Cascade of video processing entities and a method for processing video	7109995
Virtual multichannel speaker system	7113609
Receiver and system calibration circuit	7119834
Anti-loading treatments	7124216
Anti-loading treatments	7124217
Wireless cable replacement for computer peripherals using a master adapter	7127541
Method and architecture for an improved CMOS color image sensor	7129978
Image sensor circuits including sampling circuits used therein for performing correlated double sampling	7133074
Apparatus and method for automatically learning control sequences of application programs	7133141
Wireless cable replacement for computer peripherals using a master adapter	7136904

## U.S. Patents

TITLE	US PATENT NO.
Rotating storage media control loops having adaptive feed forward insertion of signals including harmonics	7145304
Method and apparatus for a CMOS image sensor with a distributed amplifier	7157682
Graphic image re-encoding and distribution system and method	7162080
Method for image compression by modified Huffman coding	7164802
System and method for frequency translation with harmonic suppression using mixer stages	7164899
Read and write sample and hold signal generation	7167432
Environmentally adaptive tuner system	7171176
Method and apparatus for distributing light onto electronic image sensors	7176446
Method and apparatus for securing transfer of and access to digital content	7178169
Methods and apparatuses for tuning voltage controlled oscillators	7183866
System and method for frequency translation using an image reject mixer	7184724
System and method for a robust de-screening filter	7187475
Efficient polyphase filter having a compact structure	7190942
System and method for frequency translation with harmonic suppression using mixer stages	7190943
2:2 and 3:2 pull-down detection techniques	7202907
Multi-resolution image data management system and method based on tiled wavelet-like transform and distinct bitstreams for distinct groups of bit planes	7206451
Emulator-enabled network connectivity to a device	7209874
Transmit-only and receive-only bluetooth apparatus and method	7231451
Current driven polyphase filters and method of operation	7242918
Unified memory controller	7263587
System and method for providing network connectivity to a common embedded interface by stimulating the embedded interface	7269543
Highly integrated television tuner on a single microcircuit	7274410
System and method for coupling internal circuitry of an integrated circuit to the integrated circuit's package pins	7304393
Integrated channel filter using multiple resonant filters and method of operation	7304533
Single chip tuner for multi receiver applications	7304689
Wireless cable replacement for computer peripherals using a master adapter	7305511
Method and apparatus for an integrated high definition television controller	7307667
Multi-range transconductor and method of operation	7313201
Radio-frequency tuner with differential converter	7319849
Use of an image reject mixer in a forward data channel tuner	7333791
Flexible and scalable architecture for transport processing	7334132
System and method for Pre-FFT OFDM fine synchronization	7346131
Radio-frequency amplifier system	7359686
System and method for communicating stored power measurement parameters between devices in a communications system	7369827
Reconstructing a partial transport stream	7372873
System and method for dynamic impedance tuning to minimize return loss	7376407
System and method for tuning a frequency synthesizer	7388437
Dynamic identification and correction of defective pixels	7388609
Techniques of modifying image field data by extrapolation	7388610
Techniques for modifying image field data	7391450
CMOS sensor with over-saturation abatement	7397505
System and method for frequency translation using an image reject mixer	7403761

## U.S. Patents

TITLE	US PATENT NO.
Techniques for modifying image field data as a function of radius across the image field	7408576
Method for reducing blocking artifacts	7426315
System and method for managing memory	7430586
Highly linear variable gain amplifier	7436262
Method and apparatus for video capture	7440476
Accelerating color conversion using a temporary palette cache	7443544
Signal-to-noise optimized fully monolithic video receiver IF channel	7444126
Digital radio system and method of operation	7446692
System and method for pre-FFT OFDM fine synchronization	7447282
Highly integrated television tuner on a single microcircuit	7453527
Chroma upsampling method and apparatus therefor	7474355
Digital attenuator circuits and methods for use thereof	7477085
Optical data media detection techniques	7492685
Transcoding media system	7505889
Technique for determining the slope of a field pixel	7515210
Broadband integrated tuner	7538621
Camera exposure optimization techniques that take camera and scene motion into account	7546026
Data sampling and extraction method and system	7554889
Method and apparatus for providing high speed recording on an optical medium	7577066
Clock signal generator	7595673
System for dynamic control of automatic gain control take-over-point and method of operation	7606544
System and method for frequency translation with harmonic suppression using mixer stages	7610032
Digital camera with reduced image buffer memory and minimal processing for recycling through a service center	7612803
2:2 and 3:2 pull-down detection techniques	7612829
Systems and methods for detecting capacitor process variation	7619421
Method and apparatus for processing video and graphics data to create a composite output image having independent and separate layers of video and graphics display planes	7623140
Systems and methods for filter frequency location	7634242
Dual conversion tuner having a first IF filter without accurate center frequency	7634243
RF filter adjustment based on LC variation	7636559
System and method for providing distributed gain	7640001
Method and apparatus for processing a compressed image in an order other than the order in which it was compressed	7643694
Double equalizer for multi-path rejection	7646806
Latch circuit	7649394
Segmented equalizer	7649932
Apparatus and method for class D amplifier with sampling rate conversion	7659778
Processing an information carrying signal	7668053
Calculating circuit and method for computing an N-th root and a reciprocal of a number	7668898
Chroma upsampling method and apparatus therefor	7671922
System and method for FFT window timing synchronization for an orthogonal frequency-division multiplexed data stream	7684313

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TITLE	US PATENT NO.
Interactive set-top box having a unified memory architecture	7688324
Flash light control through motion estimation	7697836
Method for reducing blocking artifacts	7706627
Dual mode tuner for co-existing digital and analog television signals	7707617
Chroma field Motion detector used for YC separation	7710502
System and method for frequency translation using an image reject mixer	7711346
Wide dynamic range image capturing system method and apparatus	7714903
Digital camera architecture with improved performance	7719579
Time-interleaved analog-to-digital-converter	7724173
Highly integrated television tuner on a single microcircuit	7746412
Radio-frequency amplifier system	7751857
Techniques for modifying image field data obtained using illumination sources	7755672
Combining least squares and least mean squares algorithms to determine equalizer tap values	7756200
System and method for discovering frequency related spurs in a multi-conversion tuner	7764940
Unified memory controller	7769970
System and method of eliminating or minimizing lo-related interference from tuners	7783259
Dynamic performance control of broadband tuner	7783272
System and method for dynamic impedance tuning to minimize return loss	7792512
High-performance bipolar tuner solution systems and methods	7813707
Techniques of modifying image field data by extrapolation	7817196
Flexible analog-to-digital converter	7830291
Unique identifier per chip for digital audio/video data encryption/decryption in personal video recorders	7835520
Lookup table apparatus and method for multi-dimensional signal mapping	7843465
Emulator-enabled network connectivity to a device	7848913
Methods and systems of scanning and input device having multiple key switches	7849240
Integrated channel filter using multiple resonant filters and method of operation	7852146
Digital radio system and method of operation	7852251
Method and apparatus for high definition capture	7852405
Dynamic multi-path detection device and method	7853214
Agc system and method for broadband tuners	7853227
Method and apparatus for processing a compressed image in an order other than the order in which it was compressed	7856147
Optimization of land pre-pit (LPP) slice level through feedback control	7864647
Broadband integrated television tuner	7868704
Printer driver extension and related method	7869068
Wide dynamic range image capturing system method and apparatus	7872673
Integrated channel filter and method of operation	7884886
Dynamic range compensation-dependent noise reduction	7889942
Dynamic range compensation by filter cascade	7899267
Clock-signal generator	7902893
System and method for determining transmission parameters in an orthogonal frequency-division multiplexed data stream	7903750
System and method of eliminating or minimizing lo-related interference from tuners	7904024
Techniques for modifying image field data as a function of radius across the image field	7907195
Integrated encryption/decryption functionality in a digital TV/PVR system-on-chip	7937595

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TITLE	US PATENT NO.
Look up table apparatus and method for Multi-Dimensional Signal Mapping	7940982
Radio-frequency tuner with differential converter	7957714
Fast object detection	7961908
Systems and methods for mitigating distortion in single-ended amplifiers	7978011
Advanced noise reduction in digital cameras	7983503
Interactive set-top box having a unified memory architecture	7986326
Efficient method to implement picture enhancement algorithm	7986834
System and method for FFT window timing synchronization for an orthogonal frequency-division multiplexed data stream	7990845
Proving motion estimation for luminance-changing environments and a general motion confidence measure	7995097
Dynamic range compensation-dependent noise reduction	7995856
Adaptive sample rate converter	8000423
Gain circuit	8009071
Systems and methods for broadband transmission of signals	8019221
High-speed latched comparator circuit	8030972
Auto polarized light removal	8059275
Fast training equalization of a signal by using adaptive-iterative algorithm with main path phase correction	8073046

## U.S. Patent Applications

Zoran Corporation - Patent Applications	
TITLE	PATENT APPLICATION SERIAL NO.
Network interface to a video device	10/313,536
System and method for processing a common cable signal using a low-pass filter tap	10/373,536
Robust multi-tuner/multi-channel audio/video rendering on a single-chip high-definition digital multimedia receiver	10/879,819
Advertising through recyclable digital cameras	11/024,045
Method and apparatus for remote enabling by mobile phone	11/139,046
Adaptive receiver	11/247,891
Method and system for dynamically composing a video image in real time	11/379,476
Compensating for non-uniform illumination of object fields captured by a camera	11/383,406
Labeling and sorting items of digital data by use of attached annotations	11/425,943
Virtual multichannel speaker system	11/466,551
Fast training equalization of a signal	11/518,077
Optimized timing recovery device and method using linear predictor	11/527,084
Pseudo digital gain control for broadband tuner	11/557,307
Suppression of lo-related interference from tuners	11/613,079
Highlight recovery using digital lighting module	11/752,817
Optical chromatic aberration correction in digital cameras	11/753,732
Digital camera with selectively increased dynamic range by control of parameters during image acquisition	11/756,733
Method and apparatus for printing from a mobile device	11/780,281
Activity normalization for video encoding	11/804,311
System and method for detecting edges in a video signal	11/952,661
Portable multimedia or entertainment storage and playback device which stores and plays back content with content-specific user preferences	11/963,629
Screen saver trigger using partial still picture detection	12/013,407
System and method for communicating stored power measurement parameters between devices in a communications system	12/024,740
Determination of optimal frame types in video encoding	12/029,201
Dynamic identification and correction of defective pixels	12/037,699
Diversity combining iterative decoder	12/043,798
Broadband tuner for very wide signal conversion	12/101,649
Method and apparatus for utilizing device access idle time for input sensing	12/126,573
Method, apparatus, and system for object recognition and classification	12/130,704
Method, apparatus, and system for reducing blurring in an image	12/130,733
Method, Apparatus, and System for Reducing Blurring of an Image Using Multiple Filtered Images	12/130,993
Transcoding content for maximizing playback abilities in a switch enabled device	12/191,147
Laser color copy image processing independent of classifications	12/234,500
Video signal motion detection	12/247,915
Adaptive known signal canceller	12/249,814
Apparatus, method, and manufacture for correcting color shading in CMOS image sensors	12/272,633

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TITLE	PATENT APPLICATION SERIAL NO.
Methods and systems of controlling an electronic device's I/O terminals using pulse-width modulation	12/279,310
Audio signal amplifier for karaoke player	12/279,313
Track and hold Circuit	12/279,467
Method and apparatus for controlling audio input amplitude	12/299,238
Single general purpose input/output (GPIO) pin motor control circuit	12/299,241
System and method for locating a fault on a device under test	12/299,246
Method and apparatus for mute control	12/299,248
Method and apparatus for audio receiver clock synchronization	12/299,255
Extended de-interleaver for an iterative decoder	12/340,134
Decoding stage motion detection for video signal deinterlacing	12/350,672
Method and apparatus for video signal processing	12/351,237
Apparatus and method for noise reduction with 3D LUT	12/355,713
Single integrated monitor with networking and television functionality	12/359,047
System and method for wired and wireless data routing	12/365,416
Radio frequency filter having an active inductor	12/366,458
Automatic red eye artifact reduction for images	12/391,173
Method and apparatus for controlling the use of data stored on a media sample	12/396,622
Apparatus for receiving both analog and digital TV signals	12/397,025
Image enhancement based on multiple frames and motion estimation	12/397,727
Apparatus, method and manufacture for iterative auto-focus using depth-from defocus	12/409,416
Unified single and multiple carrier receiver architecture	12/412,262
Recursive motion for motion detection in deinterlacer	12/412,522
Adaptive windowing in motion detector for deinterlacer	12/412,533
Systems and methods for detecting capacitor process variation	12/419,089
Systems and methods providing wideband tuners controlling spurious signal placement in the capture bandwidth	12/473,092
Camera exposure optimization techniques that take camera and scene motion into account	12/479,703
System and method for face tracking	12/492,538
Image processing under flickering lighting conditions using estimated illumination parameters	12/511,726
Video encoder with an integrated temporal filter	12/511,777
Systems and methods for improved control of spindle speed during optical media seek operations	12/521,462
CD/DVD mode selection control using laser diode voltage	12/532,822
In-camera panorama image stitching assistance	12/536,728
System and method for efficient video and audio instant replay for digital television	12/537,438
System and method for integrated timing control for an LCD display panel	12/547,143
Robust fast panorama stitching in mobile phones or cameras	12/549,254
Method and apparatus for post noise reduction black level correction	12/554,106
Wide dynamic range image capturing system method And apparatus	12/561,983
Systems and methods for display device backlight compensation	12/563,477
Method and apparatus for adaptive contrast enhancement of image data	12/572,040

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TITLE	PATENT APPLICATION SERIAL NO.
Digital camera with reduced image buffer memory and minimal processing for recycling through a service center	12/572,117
Method and apparatus for deinterleaving in a digital communication system	12/577,125
Double equalizer for multi-path rejection	12/581,833
System and method for frequency translation with harmonic suppression using mixer stages	12/606,341
Latched comparator circuit	12/620,156
Method and apparatus for processing video and graphics data to create a composite output image having independent and separate layers of video and graphics display planes	12/621,392
Systems and methods providing spur avoidance in a direct conversion tuner architecture	12/632,571
Systems and methods providing in-phase and quadrature equalization	12/632,624
Multimode filter architecture	12/632,634
Systems and methods providing multi-path low noise amplifiers with seamless switching	12/632,648
Method and apparatus for spectrum estimation	12/637,526
Method and apparatus for content adaptive sharpness enhancement	12/637,534
System and method for a versatile display pipeline architecture for an LCD display panel	12/643,341
Method and apparatus for SATA hot unplug	12/651,924
Segmented equalizer	12/651,980
Method and apparatus for voice controlled operation of a media player	12/668,238
Control of artificial lighting of a scene to reduce effects of motion in the scene on an image being acquired	12/709,667
Estimation of the point spread function from a motion blurred image	12/721,263
Method and apparatus for image stabilization	12/755,958
Exposure control for high dynamic range image capture	12/756,035
Method and apparatus for image detection with undesired object removal	12/756,937
Multiple exposure high dynamic range image capture	12/763,693
Processing of video data to compensate for unintended camera motion between acquired image frames	12/767,753
Digital camera with virtual memory	12/781,736
Techniques for modifying image field data obtained using illumination sources	12/782,502
System and method for retaining a desired return loss when dynamically varying a number of active paths	12/784,291
Systems and methods for intra communication system information transfer	12/787,147
Review of document with printable components at a printing device based on its printing capability	12/791,840
Preview and modification of printable components of a document at a printing device	12/791,844
Methods of and arrangements for offset compensation of analog-to-digital converter	12/815,882
Adaptive bandwidth allocation in memory	12/819,051
Systems and methods providing signal power detection using low performance circuitry	12/821,901
Highly integrated television tuner on a single microcircuit	12/826,498



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TITLE	PATENT APPLICATION SERIAL NO.
Method and apparatus for low-light imaging enhancement	12/834,297
Method and apparatus for memory access	12/841,059
Depth from defocus calibration	12/857,343
System and method for integrated timing control for an LCD display panel	12/857,697
Advertising through recyclable digital cameras	12/879,389
Method and apparatus for image correction	12/888,296
Method and implementation for efficiently adapting channel filter characteristics	12/895,501
Passive eyewear stereoscopic viewing system with scanning polarization	12/900,738
Techniques of modifying image field data by extrapolation	12/903,114
Digital attenuator circuits and methods for use thereof	12/904,048
Method and apparatus for mapping a multi-dimensional signal from one space to another space	12/911,675
Passive eyewear stereoscopic viewing system with frequency selective emitter	12/913,229
3D display using alternate half screen flashing and synchronized shutter glass	12/917,976
Integrated channel filter using multiple resonant filters and method of operation	12/940,624
Composite distortion in cable tv tuners	12/944,540
High-speed multi-type substrate analog to digital converter	12/944,563
Transfer of multiple dtv transport streams between client and host	12/945,494
Serial data interface for software-defined radio system	12/945,584
Unique identifier per chip for digital audio/video data encryption/decryption in personal video recorders	12/945,721
Arbiter-based automatic gain control	12/946,625
Dynamic range correction based on image content	12/961,400
System and method for accurate and fast frequency and phase lock detection	12/964,683
An integrated channel filter and method of operation	12/983,781
Comparator circuit	12/993,145
Digital RF modulator with audio encoder for analog television	13/009,553
Phase-locked loop	13/063,286
Fast port switching in an audiovisual receiver by use of port pre-authentication by a partial PHY decoder core	13/074,248
Multiple exposure high dynamic range image capture	13/090,985
Multiple exposure high dynamic range image capture	13/091,068
Detecting objects in an image being acquired by a digital camera or other electronic image acquisition device	13/099,304
An apparatus and method for sharing hardware between graphics and lens distortion operation to generate pseudo 3D display	13/105,813
Analog-to-digital converter	13/122,824
Font emulation in embedded systems	13/149,684
Advanced noise reduction in digital cameras	13/160,775
Systems and methods for color conversion using intelligent boundary point perturbation	13/163,282
Automated segmentation tuner	13/163,524
Method for progressively determining depth from defocused images	13/183,363
Systems and methods for remote control adaptive configuration	13/194,307
Purple fringing automatic detection and correction	13/206,763

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TITLE	PATENT APPLICATION SERIAL NO.
System and method for providing multi resolution purple fringing detection and correction	13/206,788
Coloration artifact reduction	13/217,003
Advanced noise reduction in digital cameras	13/231,060
Luma/chroma based quantization	13/237,623
Three color neutral axis control in a printing device	13/242,385
Method, apparatus, and manufacture for adaptation of video encoder tuning parameters	13/253,807
Method, apparatus, and manufacture for local weighted predication coefficients estimation for video encoding	13/253,840
Saturation insensitive H.264 weighted prediction coefficients estimation	13/253,922
Auto polarized light removal	13/276,102