



# Destiny



**Integrated Amplifier**



**CD Player**

## **A Word from Mike Creek**

Performance figures for hi-fi products can be very misleading. With more than 35 years experience in building high quality audio products I have made every effort with the Destiny range to optimise the performance through appropriate use of modern and well established technology, so as to have a meaningful benefit to the consumer. Some of my customers have said to me that I am too much of a perfectionist and should speed up the development of my new products, but I feel that our future in the Hi-Fi business is best served by being very selective about quality and performance.

The Destiny products are my proudest creation so far.



## Destiny Integrated Amplifier

### Conception to Reality

Over the last few years, Mike Creek has become eager to take his company more up-market. The amount of similarity there is when designing budget products that work well but cost a fraction of those very esoteric products and brands which fill the pages of the world's hi-fi magazines is often misunderstood. Mike knows a thing or two about designing budget products, that goes without saying. How would he cope with the rigours of designing such exclusive and exacting products the high-end consumer is used to buying? 'Well', he says, 'thank goodness for team work'. The Destiny product range was conceived to replace the renowned Creek 53 series, but during the design stage, such were the efforts made by the Creek team to improve the already exceptional 5350SE and CD53 that, in reality, a very different product emerged.

### Form and style

The Creek design created a brand new case style, with the aid of 3D solid modelling software. They specified only the best components for every section of the amplifier, to fully exploit the capabilities of the already excellent 5350SE circuit. The casework used by all Destiny products is constructed from custom made extruded aluminium sections, machined and anodised to a high finish to enable the massive 4mm thick top and bottom panels to be bolted to the front, rear and side panels. Using countersunk stainless steel screws thereby forming an extremely rigid and smooth structure, the Destiny amp is enormously strong. To damp the effects of vibration from possibly affecting the sonic performance, custom moulded Sorbothane™ feet have been fitted isolating the case and its contents from a shelf or mounting platform.

### Reliability

To allow good ventilation and reliability, the Destiny amp uses large custom heatsinks for each channel together with significant areas of ventilation slots on the top and bottom of the case. Being an all aluminium construction, the whole case will eventually become warm, as it radiates the heat generated by both amplifier circuits. Large solid aluminium disc feet are a new feature of the Destiny design which also increases the space underneath for air flow.

### Sonic Values

Improvements to the layout and wiring of the Destiny amplifier has made a substantial improvement to the sonic performance, when compared to the illustrious 5350SE.

The decision to retain the motorized 27mm high grade ALPS 'Blue Velvet' volume potentiometer, instead of using a more popular digital volume control contributes significantly to its superb performance. Loudspeaker connection is now via 8 gold plated, touch-proof, 4mm style, high current binding posts.

The Destiny Amp has the unusual feature of allowing the user to choose between a sonically perfect passive (no gain) pre-amplifier and a high precision, active pre-amplifier. The active stage, which uses a Burr-Brown OPA-2134 precision Op-Amp for each channel, has the added feature of a +3dB, +6dB or +9dB gain boost, user selectable with a 3 way slider switch, located on the underside of the pre-amp section.

To further enhance the performance the Destiny's pre-amp and power amplifier can be joined and separated by a push button switch, recessed behind the rear panel. Signal paths, to and from the pre and power amplifier internally, are carried by audio grade shielded cables.

### Special Features

A new feature for the Destiny amp is low-current standby operation. To achieve this, the amp has a constantly powered, small toroidal transformer and power supply dedicated to running the microcontroller and all its digital circuitry. If all protection conditions are satisfactory, a high current relay will connect the mains voltage to the amplifier's power transformer, to power-up the amplifier and all other analogue circuitry.

To expand the control of the Destiny product range, a custom Creek bus system is in design to allow the user to connect to a (RS232 style) room controller. Creek plans to introduce such a device in 2006, however proprietary types are also suitable. Serial RJ45 connections are found on the rear of the Destiny range products.

Most types of dynamic headphones can be connected to the standard size ¼" jack socket on the front panel, for high performance reproduction.

The Destiny integrated amplifier is supplied with Creek's new system remote handset providing full control for all Creek products.

### Modular Options

A new, modular plug-in feature allows the Destiny amp to have a highly flexible option for Aux Line input.

Firstly, there are dedicated Destiny balanced input MM or MC Phono circuits available, which exploit the balanced nature of Phono cartridge wiring, to significantly improve interference suppression and provide studio levels of accuracy to the venerable vinyl disc source. For digital enthusiasts, Creek plans to offer a high-end 24 bit D to A converter to allow the amp to accept SPDIF signals on both Aux1 inputs. The Destiny amp will automatically recognise which plug-in feature has been installed and indicate this on the front panel. The basic product comes with a linking PCB that treats Aux1 as a line level input.

### Techno-babble

The Destiny's unique MOS-FET power amp circuitry is an evolution of the design first used by Creek products in 1993. Improvements in the Destiny include the use of SMT (Surface Mount Technology) to reduce the size and space of the amplifier circuitry and improve the layout. This allows the signal path and amplification to be located on the top layer of the circuit board and the power supplies and ground plane to be located on the bottom layer. 'Dual Mono' layout and construction and a massive 300VA low noise toroidal transformer with separate windings for the pre-amp and power amp circuitry has greatly improved the performance. In addition, the left and right channels now have their own low impedance DC power supplies, fed from two separate Shottky Barrier diode bridge rectifiers and multi-capacitor reservoirs, totalling 20,000 microFarads. This allows the Destiny to output more than 100 Watts per channel into an 8 Ohm load, both channels driven and a massive 200 Watts into 4 Ohms, one channel driven. Input selection is now performed by a separate relay for each of the 5 line inputs plus the single tape loop. Input selection is visibly indicated by LED's which have four, user adjustable, brightness levels.

### Protection Modes

Protection of the amplifier and ancillary products under fault conditions is facilitated by an array of sensors and measurement circuits feeding-back information to the microcontroller that monitors the amplifier constantly for over-temperature, over-current, DC offsets, power supply status and over-drive situations. If any of these conditions is exceeded the micro will take the appropriate corrective action. This can include, muting the input signal, separating the speaker outputs and, in extreme cases, switching off the mains supply to the power amplifier circuitry.





## Destiny CD Player

### Lineage

The CD50mk2 was the best sounding CD player Creek Audio ever produced. It out-performed all of the company's previous players in the area of sound quality, playability and reliability. It was also the first CD player Creek produced using a ROM drive, instead of the more usual CD transport. It built on the experience of the earlier CD50 mk1 and CD53, which won many accolades for high quality sound reproduction. Sound quality, of the CD50 mk2 was, however, as high as Creek could make within its budget constraints.

### Destiny

Creek's objective for Destiny is to make the highest quality product it can, by fully exploiting the CD50mk2's basic electronic design concept. By removing budget price constraints, selected components have been used to open-up the performance to the max. The Destiny CD achieves real 'High-End' performance in all areas of sound quality, engineering and construction.

### Never Judge a Book by its Cover

The new Destiny casework design uses heavy extruded aluminium sections and turned control knobs and buttons, machined by computer aided manufacturing techniques, to achieve a very high quality finish. Sorbothane™ moulded feet, are also used to isolate mechanical vibration and improve sonic resolution. However, the outstanding contribution Destiny's new casework has made to the appearance is not at the expense of the internal electronic design. High quality gold plated double sided circuit boards are mainly populated with (Lead Free) surface mount electronic devices to create an ideal environment for the digital and analogue circuitry to be optimised. Analogue and digital domains are fully isolated to remove any possibility of interference or blurring of the audio signals.

### How the CD Transport System Works

The Destiny CD uses a custom made DVD ROM drive, (DVS-710A) similar to that used by any high grade DVD player. Creek have customised the firmware to create a regular x2 speed, high resolution, disc drive system suitable for CD only reproduction. Copy protected and multi-media discs are supported by this drive and if, in the future,

any firmware upgrades are required, these can be supplied on disc or down-loaded via the Creek web-site. Raw digital data is output from the transport via an ATAPI bus system to the Destiny CD's main processing board. Custom electronic buffering (FPGA) circuitry stores the data momentarily before correcting any errors and re-organising it into a (I2S) format, suitable to be fed to the Destiny's digital to analogue converter (DAC) circuit.

### Power Supplies

To optimise the Destiny CD's performance it uses a total of 3 encapsulated toroidal transformers mounted on a separate power supply circuit board, together with a fully shielded multi-element mains filter and mains voltage selector switch (115-230V AC). The filter not only prevents interference but also filters any mains disturbances from affecting the reproduction quality of the player. Three transformers are used to isolate the digital, analogue and transport circuits. To reduce interference further and improve efficiency, all rectifiers in the power supply are Schottky Barrier types. To reduce the power supply's impedance, all decoupling capacitors are audio grade, high temperature (105 degree C) types. In total there are 16 regulated power supplies used to isolate the circuitry in the Destiny CD player.

### Master Clock

Perhaps the most important, but least mentioned, part of any CD player is the master clock. To clock the data through the Destiny CD a low phase noise (5pS), temperature controlled, master clock oscillator is used, which is powered by a low impedance voltage regulated power supply. Jitter is the key to achieving high performance in digital products and the lower the jitter is, the better the CD player will sound. To further enhance its performance, Creek has introduced additional re-clocking circuitry between the Transport circuitry and DAC, to eliminate timing errors (jitter) from corrupting the digital data. The Destiny CD player produces exceptionally low (150 picoseconds) jitter on its analogue output.

### Digital to Analogue Circuitry

To maintain a sonic family resemblance to other Creek CD players, the Destiny continues to use a Crystal Semiconductors

24 bit 192 kHz, Delta-Sigma DtoA converter. Fine tuning and attention to power supply requirements has allowed the Destiny to extract the maximum performance from this excellent DAC. Needless to say, CD Players read discs that are recorded at 16 bit and 44.1 kHz resolution. Creek engineers do not believe that up-sampling will improve the performance of this player.

### Audio Output Buffer and Filtering

From the output of the DAC, additional analogue filtering is required to remove all high frequency digital artefacts. In the Destiny CD, instrument grade, OPA134 op-amps are used in the audio output to buffer each channel and filter any unwanted digital artefacts. These op-amps are also powered separately by their own low noise regulators and mains transformer. Audio signal path passive components are selected for sonic purity, so the Destiny uses high-stability MELF type resistors and film and polypropylene type capacitors only. Audio output RCA sockets are individual high-grade, solid, gold plated types.

### Digital Output

For use with external digital converters, the Destiny has a transformer coupled SPDIF output via RCA connector and an optical output via a TORX connector, on the rear panel.

### Control

Creek's SRC system remote handset is supplied with the CD player providing full control not only of this product, but all Creek's other IR controllable models. It has also incorporated a Creek (CAN) bus system to link to other Destiny products. In 2006, Creek will produce an interface for (CAN) bus to RS232 serial bus, allowing Destiny products to link to proprietary multi-room controllers. Also in 2006, Creek will produce a room controller of its own. Please check our website for further developments.

The Destiny CD player has been designed to ideally, although not exclusively, partner Creek's Destiny integrated amplifier.

Destiny products are available with either silver or black front panels.



## Destiny Integrated Amplifier

### Specifications

Power Output into 8Ω (both channels driven)	> 100 Watts
Power Output into 4Ω (both channels driven)	> 160 Watts
Power Output into 4Ω (one channel driven)	> 200 Watts
Peak Output Current into 1Ω	> 25 Amps RMS
Total Harmonic Distortion (20 Hz - 20 kHz)	< 0.05%
Frequency Response	3 Hz to 80 kHz - 1dB
Slew Rate	> 50 V per μS
Gain with passive pre-amp mode	x 48 33.6 dB
Gain increase with active built in pre-amp (Switchable voltage gain via slider switch underneath pre-amp section)	+3dB, +6dB and +9dB
Input Sensitivity for 100Ω passive	0.59V
Pre-amp output level	Follows input signal level via volume control
Signal to noise ratio	> 105 dB
Separation	> 60 dB @ 1 kHz
Switchable mains voltage selector	115/230 VAC
Inputs	5 plus 1 x Tape, plus tape monitor (via RCA sockets)
Loudspeaker Outputs	Switchable A + B
Headphone Output	Yes
Switchable pre-amp output and power amp input	Yes
Weight (net)	10 Kg
Size (W x H x D) mm	430 x 70 x 310 (net)
Remote control	Custom Creek SRC system remote handset using RC5 codes

## Destiny CD Player

### Specifications

Power requirements (Selectable by switch on underside of player)	Supplied 220/240-50 Hz or 100/120-60Hz
Power consumption	20 W max 6 W in standby mode
Mains filtering	Multi-pole bi-directional
Power supply	3 fully encapsulated PCB toroidal transformers for transport, logic and analogue circuitry
Frequency response	1 Hz - 20 kHz ±0.25 dB
Output level	2.0 V RMS at 1 kHz, 0 dB
Output impedance	50Ω min load 1 KΩ
D to A type	24 bit - 192 kHz (> 120 dB) Crystal CS4396
Total harmonic distortion	< 0.0008% at 1 kHz, 0 dB
THD + Noise	> -97dB
Dynamic range	> 117dB
Clock type	Temperature compensated ultra low jitter and phase noise module with re-clocking
Number of channels	2 via high quality solid RCA gold plated sockets
Digital output	Re-clocked optical via TORX and transformer coupled co-axial gold plated RCA socket.
Laser type	Semiconductor ALGaAs
Wavelength	790 nm ± 25 nm
Light output (cw)	0.18 mW typical
Transport	DVD loader with ATAPI interface. Firmware upgradeable
Software	Custom Creek software, running loader, display, remote control and DAC. Upgradeable via plug-in EPROM
Case	Built with custom Creek extruded panels throughout
Weight	6 Kg
Dimensions (W x H x D) mm	430 x 70 x 310
Remote control	Custom Creek SRC system remote handset using RC5 codes

#### MAINS VOLTAGE AND FREQUENCY IS INTERNALLY SET FOR THE COUNTRY OF USE

*Creek Audio Ltd reserves the right to change or modify the specification of its products without prior warning*

#### WARRANTY

If within two years of purchase date your Destiny product proves to be defective for any reason other than accident, misuse, neglect, unauthorized modification, or fair wear and tear, Creek Audio Ltd. will, at its discretion, replace the faulty parts without charge for labour or return carriage within the U.K. This warranty is valid only in the U.K. and given in addition to statutory rights.

Service enquiries outside the U.K. should be addressed first to the supplying dealer and/or the Creek distributor/importer. Warranties granted in these countries are entirely at the discretion of the distributor.

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