



Docet-Lector  
Via Cairoli,111/116  
I-27010 Albuzzano (Pv) Italy EU  
Tel. +++0382.484165  
Fax +++0382.481021  
Web: www.docet-lector.com



## DIGICODE 2.20 in detail

Digicode is the name of all our digital to analog convertor.

First model was build in 1992 : multibit d to a convertor by 16 bits / 4 time oversampling filter and class one digital spdf receiver, output stage by two double triode (one ECC-83 and one ECC-81).

Digicode was built in one chassis with internaly power supply,one spdf input and a pair of analog output.

Digicode 2.18 was the second generation of our tube dac (1997).

This second up-to-date convertor was designed for high flexibility, modular pcb-board solution, externaly power supply for better s/n ratio.

Very close with our philosophy: class one spdf and aes-ebu receiver, mulbit dac AD-1865 (hi-resolution 18 bit) digital filter with low taps (near to nonoz theory) set-up decision by customer's by internaly dip-switch. Two tubes on signal path now all ECC-81/12AT7, passive I to V converter.Great sound!

Digicode 2.20 is our actual model of hi-resolution D to A convertor.

As very close of 2.18, the model 2.20 adopted two mono Burr Brown PCM-63 convertor for 20 bits resolution, around the PCM-63 is build a low level linearity circuit for better resolution for little audio signal near -70 db, so the little information of audio spectrum, Digicode 2.20 reproduce without hide the music detail.

## DIGICODE—2.20 description and design

Digicode 2.20 is our reference Dogital to Analog convertor for 20 bits resolution.

The DAC is build with two separate chassis: main house and power supply with three power transformer. Digicode 2.20 can accept three type of digital signal: SPDF by RCA connector, SPDF by BNC connector and AES-EBU by XLR connector. Out signal: pair of hi-quality RCA unbalanced output for analog signal at very low impedance.

The main house of convertor use three separate board:

- Digital input receiver and digital filtering ( with dip-switch configuration)
- DAC board with two PCM-63 Burr Brown convertor (with MSB/LSB trimmered tuning set-up)
- Tube output board with two hi-grade ECC-81/12AT7 just only one capacitor on signal path.

The power supply box have three power transformer: one for every board, single board have independent power transformer, reduce jitter and digital noise.

### Digital input receiver:

This board accept digital input signal as SPDF or AES-EBU. The input digital signal is coupled by special low noise pulse transformer.

The IC receiver have good eletrical performance but we have design a new PLL filter drive a XTAL oscillator by hi-precision quard device,this solution reduce the jitter at very low value (20pps).

The digital filter perform by user two possibility of set-up as LOW TAPS or HIGH TAPS ( taps is the coefficient number of samples can introduce the digital filter). LOW TAPS can work the filter at very close performance as "nonoz" solution ( zero oversampling filter) the set-up is by dip-switch so is possible to chance as preferred sound perceived.

All power supply regulator on this board have special design, they are all SHUNT regulator device.

SHUNT regulator supply a very low impedance sources ( less off 0.2 ohm) so the power supply close it's ability to produce invasion on sound quality of active device.

### DAC board:

The new dac board use two PCM-63 multibit R2R dual mono 20 bits resolution.

We have introduce on this board some news design solution as the SHUNT regulator power supply (four independent power supply) and a tuning trimmered set-up for to reduce the waste of bits for unprecision dac low level operation.

The set-up of MSB/LSB is trimmered in the factory and don't need to recalibrate in the future.

This solution provide a very high precision resolution at low level dac area down -70 db (usually the sigma delta dac have resolution at -30db!)

## Tube output board:

Our tube output board use two double triode il class A : ECC-81 / 12AT7.

The current to voltage conversion is possible by a simple passive solution by combination of special resistor and variable pot's, so the output signal from dac without any capacitor drive the grid of the tube. A simple filter at 6 db/oct reduce the spuriae generated from dac, this solution don't introduce variation of phase and phase-distorsion.

Output stage have a very low impedance characteristics as less off 250 ohm.

The output capacitor is made under design of Lector, they are film-and-foil with special dielectric and plastic material. This capacitors supply a "ghost performance" as the tube is directly connectet to output! Power supply for high-voltage section have special design circuitry as "float" transistor device so the residual noise is very low.

## Other strong points of our Digicode 2.20:

- High tickness chassis as 15/10 mm
- High tickness plexiglass front panel as 8 mm
- Vista view of tube operation by window
- High grade PSU gold plated connector military grade
- Cherry wood for lateral sides
- Selected tube as per noise and triode precision
- Dual power supply operation swith as ANALOG and DIGITAL
- Ground selector swith for board and chassis gnd

## Images of Digicode 2.20



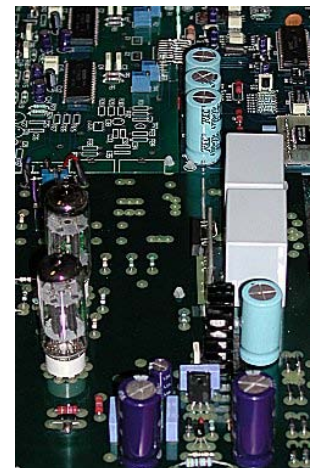
Digicode tube view windows

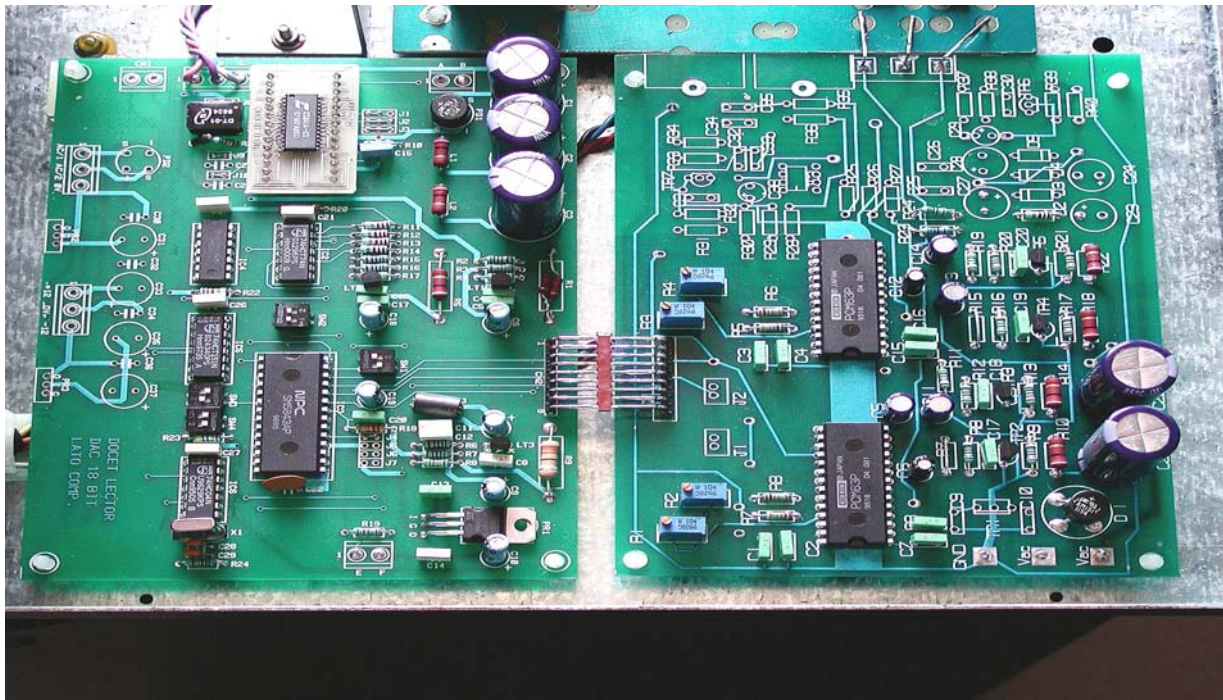


Digicode and power supply

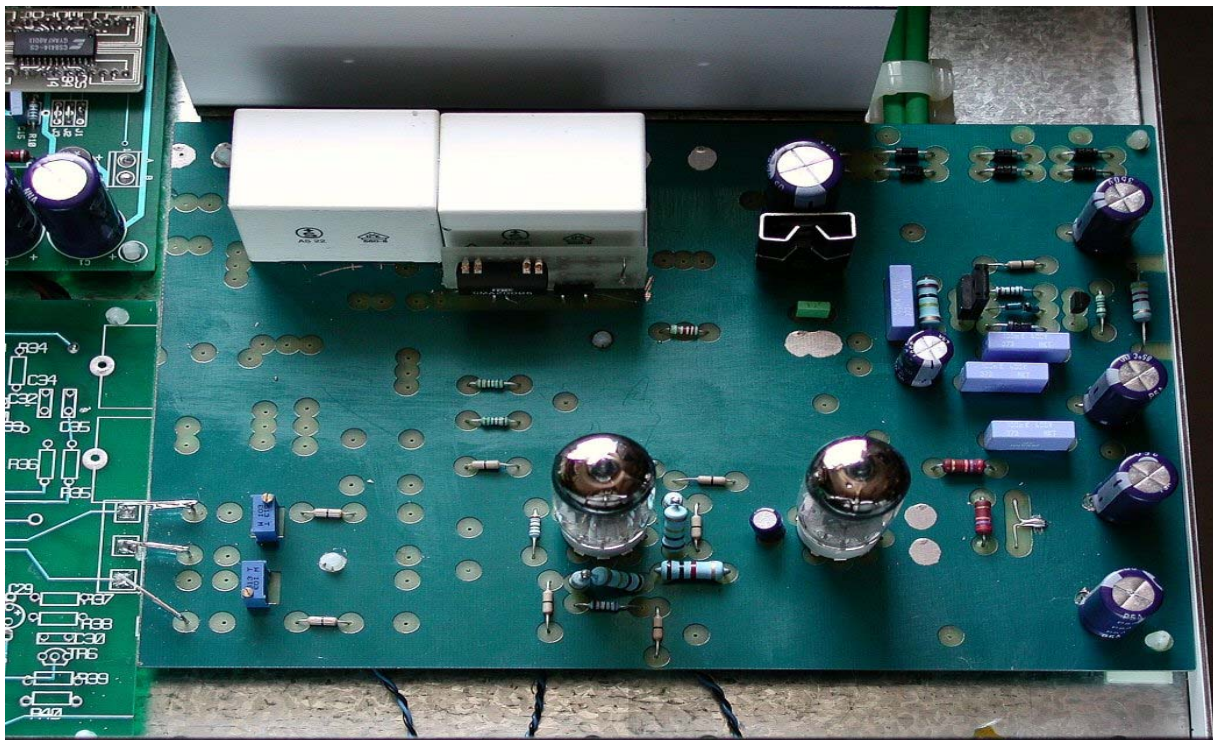


Internaly view





Digital section: left input digital board, right dac board



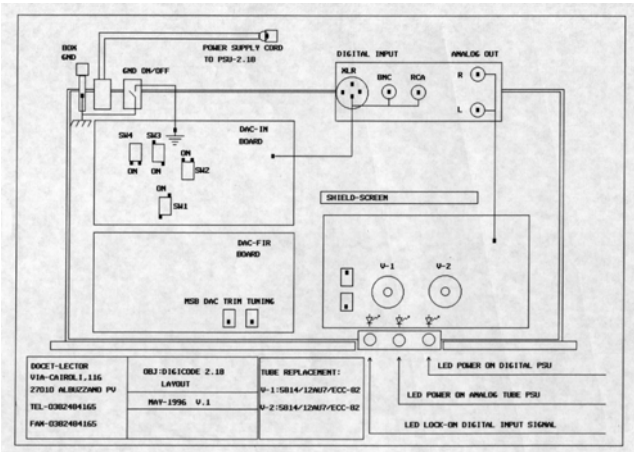
Tube board



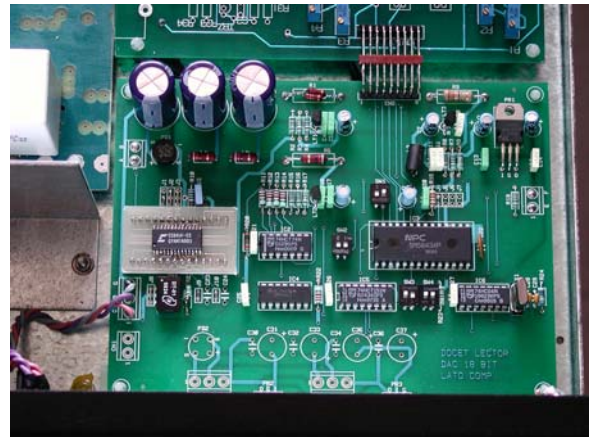
Rear power supply connector



rear analog (left) digital inputs (right)



Dip switch locator



### DIGIDRIVE T.L

Top loading cd-player transport with separate power supply

Ideal partner for Digicode

**ALL MEASUREMENT @ 1 KHz input reference CD-TEST CBS CD-1 @ 230 vac +/-5%**  
*Measure instrument by Audio Precision sys-1*

- Standard version off DIGICODE 2.20/A

Type off unit	Digital to Analog convertor with tube output and special set-up function
Harmonic Distorsion THD	Better than 0.1 %
DAC Type and filter	20 bit dual mono dac PCM63 with MSB set-up circuitry for better linearity
Signal to noise ratio	100 db (A)
Tube for preamplification stage	ECC-81 – 14 AT 7 selected by Lector during testing
Frequency response	20 - 22 KHz +/- 1.5 db
Digital inputs	SPDF (two) AES-EBU (one) Optional: OPTO Toslink or ST-II
Analog Line outputs	1 one pair RCA at 3.0 V 250 ohm
External power supply	100/110/230/240 Vac 50/60 Hz 70 V/a
Dimension main unit - external measurement	420 x 300 x 110 ( L x P x H) mm
Dimension power supply	200 x 300 x 85 (L x P x H) mm
Weight	7 Kg net 8 Kg gross
Accessories supply	Power cable mains / manual instruction/ Genuine cherry wood veneering sides panel

- Version available of DIGICODE 2.20/A

DIGICODE 2.20/A standard	Basic version with three digital inputs (spdf/aes-ebu) and cherry wood sides panel
DIGICODE 2.20/AT OPTO TOSLINK	With Toslink opto digital input
DIGICODE 2.20/AS ST-II	With ST-II professional opto digital input
DIGICODE 2.20/B BALANCED	With analog balanced output by two XLR connector circuit use super-permallory very low noise transformer as special hand-made manufacture by Lector

Note:

*Digicode come supply as several version and is possible to add some inputs/ outputs togheter.  
Ex: opto toslink or opto STII + Analog Balanced output by superpermallory transformer*

Il Digicode può essere fornito anche con l'aggiunta di più ingressi e uscite.

Es: opto toslink o opto STII + uscita analogica Bilanciata con trasformatori in superpermallory