



Technology

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[Super Analog](#)

[Refined Digital](#)

xrCD-24 bit Super Analog by JVC

Welcome to JVC's XRCD-24 bit Super Analog. This new XRCD represents JVC's continuing commitment to the pursuit of digital audio perfection. This ongoing evolution of the XRCD series allows the discerning listener to participate in the results of JVC's research and development in both mastering and manufacturing, hardware and methodology. As with the entire XRCD series, no proprietary chips, processors, or special compact disc players are required to enjoy the sonic benefits of the XRCD.

In most cases after a record has been mastered, a CD-R, DDP tape, or U-matic 1630 format tape is prepared and shipped to the manufacturing plant.

At this point the artist, producer, and engineers can only hope their work will return to them in a relatively unchanged form. The manufacturing chain is not standardized, and while digitally correct, does not always reproduce the highest audio quality possible. Since the manufacturing process works as a number of components linked together in series, the overall performance can be limited by each stage. This means extreme care and attention must be paid to every aspect of mastering and manufacturing to successfully capture the original recorded performance. JVC has accomplished this not by just measuring the results, but in extensive listening tests to determine the best overall configuration. Every combination of equipment, connections, AC power regulation, word clock, distribution, mastering format delivery, and compact disc construction was tested. The result is the XRCD, a compact disc that offers clearer definition, more accurate imaging, and higher audio quality than any compact disc before.

The XRCD process begins at mastering. The analog signal is taken directly from the custom mastering console and digitized via JVC's newly designed K2 24 bit Analog-to-Digital Converter. The 24 bit digital word then passes through JVC's Digital K2, which regenerates a pure 24 bit digital signal that is recorded to a SONY PCM-9000 magneto-optical disk. The XRCD process takes advantage of the stability of the magneto-optical disk, as well as its 24 bit capacity, by using it as the audio storage medium for delivery to manufacturing.

At the JVC manufacturing plant in Yokohama, Japan, the 24 bit SONY PCM-9000 magneto-optical disk is played back through the Digital K2. This step eliminates any jitter and distortion that may occur during the digital signal playback. The 24 bit word is then converted to 16 bits using K2 Super Coding, which insures true 16 bit dynamic range. The 16 bit signal is then EFM encoded, and sent to a high precision DVD K2 Laser, modified to cut "Red Book" format CD glass masters using JVC's Extended Pit Cutting Technology. The Extended Pit Cutting Technology optimizes the linear velocity of the glass master depending on program length, thereby producing more precise pit lengths. The DVD K2 Laser also regenerates the EFM signal right before burning the pits on to the glass master, eliminating any time-based jitter that may be present in the data stream. The entire operation is controlled using a K2 Rubidium Clock that is over 10,000 times more accurate than conventional crystal clocks. JVC then eliminates two steps of production by using their Master Stamper Process. This process

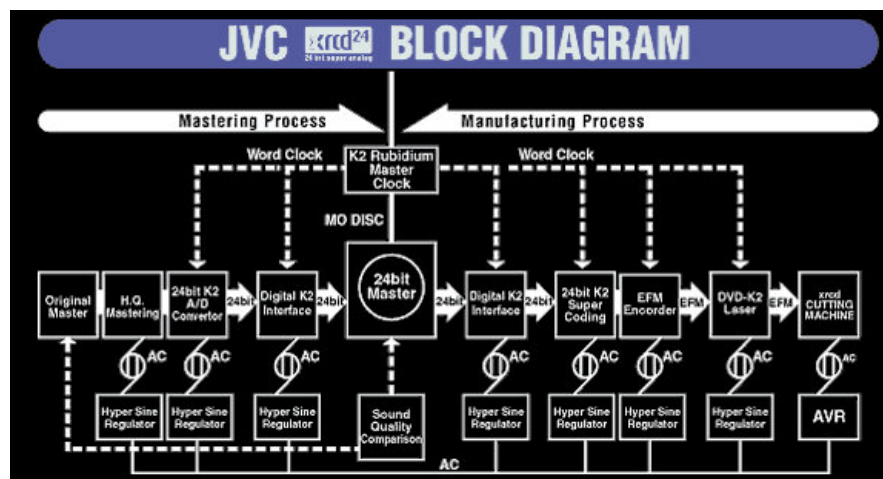
makes the XRCD stamper directly from the glass master and only allows a limited run of XRCDs.

The end result of this mastering and manufacturing process is the highest quality transfer from the original master tape to "Red Book" standard CD.

This attention to detail allows the listener to enjoy the music in the same way the artist, producer, and engineers intended it to be heard, and on any CD player. Every nuance of the performance is duplicated as it was recorded. This is the XRCD - 24 bit Super Analog ... listen and compare.

What makes the XRCD - 24 bit Super Analog so impressive:

- XRCD is a standard "Red Book" CD and can be enjoyed on any CD player.
- For the first time ever a 24 bit digital signal is used as an essential part of the CD manufacturing process.
- High precision Encode K2 and K2 Laser and K2 Rubidium Clock are used together to greatly improve CD glass mastering.
- Quality control from mastering through manufacturing insures the original audio brilliance is maintained in the final XRCD.
- A constant commitment to quality audio by highly trained and dedicated audio engineers means every XRCD will sound magnificent.



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