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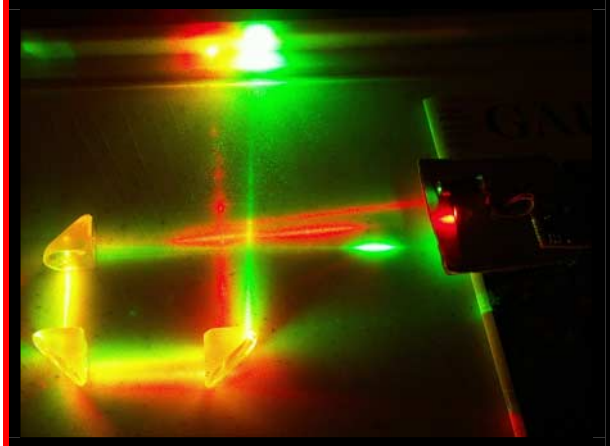
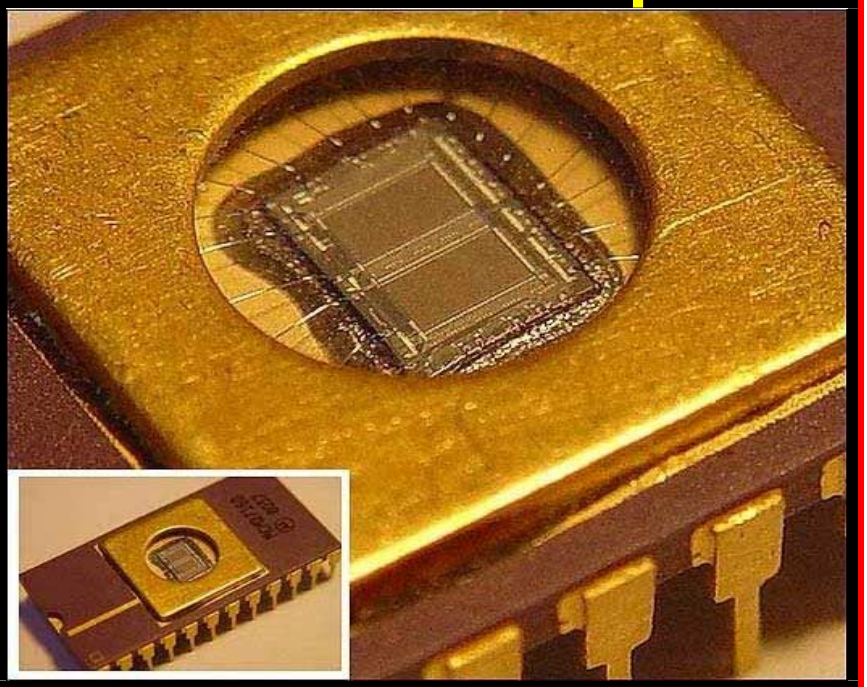
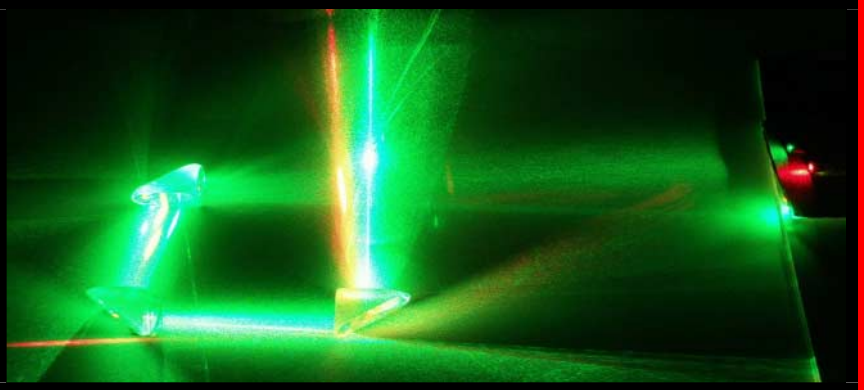




- (E)EPROM, OTP, Flash
- מיקרו-בקרים ובקרים מתוכנתים
- ICP/ISP In-Circuit-System
- C/PLD, PAL, GAL, JTAG
- I²C, SPI Serial EEPROM
- Real-Time Clock Devices
- System & Video BIOS
- גיבוי כרטיסי ודיסקים פלאש

- המרה קבצים בינאריים .. Bin, Hex, s19



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TECHNICAL BULLETIN DOC. REF. NAME: **TB-053-251029-FW-BACK-UP**

Bulletin No.:	053
Created:	September 1, 2023
Last modified:	October 29, 2025 (restored and modified)
Product:	Any
Subject:	Structured Back-Up of Software/Firmware Binary Files
Pages:	2 including enclosed pages.
Applicable For:	
Note:	

FOR ATTENTION OF THE LAB & FIELD AUTOMATION & CONTROL ENGINEERS INVOLVING IN MAINTENANCE OF THE INDUSTRIAL AUTOMATION & CONTROL SYSTEMS

STRUCTURED BACK-UP OF SOFTWARE, FIRMWARE & PARAMETER BINARY FILES FOR CNC, PLC, SERVO, VFD DRIVES, FOR MEASUREMENT INSTRUMENTS & FOR SPECIAL CONTROLS

Backing-up of important data and software are necessary for any computer system, since SW/Data recovery, of any damaged storage media, is a very complicated and expensive process, if recovery is possible at all. Any storage media has a less or more, but limited life time, irrelevantly to a media physics being used, Magnetic HDD/Type, SSD, Flash,.. There are much ways and devices intended for backing-up programs and information of CAD and of usual office computers. In addition, serious and professional efforts should be invested in accurate backing-up not only for industrial IBM PC compatible and newer computer systems, but also for non-standard Embedded Computers and Controls being implemented inside of special and industrial control equipment, for example as listed below:

PLC - Programable Logic Controllers
VFD - Variable Frequency/Speed Drives
XYZ.. Servo Drives
CNC - Computer Numerical Control for different machinery
Hydraulic Servo Systems Controllers
Medical & Measurement Instruments
Industrial Network Equipment

A properly made and stored back-up files, allow recovering of any system with damaged data and/or firmware quickly and safely. All, system Firmware/OS, application programs and configuration parameters' files should be stored with corresponding detailed description files. Description files should include all formal and technical details for the backed-up files. A template example of a such description file is shown below:

Company Name:	PRAF Microcomputer Technologies Ltd.
File:	R01-208E.txt (A file name of this description file)
Backup File:	R01-208E.bin (A file name of backed-up binary executable file or parameters file)
Created:	07.09.23
Last Modified:	09.09.23
Customer:	Israel Aircraft Industries Ltd.
Department:	CNC Metal Processing
Line:	Alonex A3/A4
Machine/Control:	AMK AZ-05
Card:	AMK AZ-R01
Device:	ST M27C4002-10FI EPROM
Device marked:	"AZ-R01 V02.08","1996","25399"
Note:	English Language user interface.
ChckSum:	40D4h
Programmer:	LabTool-48UXP

TECHNICAL BULLETIN DOC. REF. NAME: **TB-053-251029-FW-BACK-UP**

Maximum information, referring all the important technical aspects and features, equipment HW revisions, modes of operation, etc,.. should be included in corresponding description files. Creation and modification dates should track a history of updates and corrections for the equipment, its SW/FW and parameters.

Special and universal programmers, special parameter loader programs, special cables and adapters and/or other development tools should be used for downloading and uploading back-up files. Storage of the back-up files should be at least in double copies on physically different medias and on different storage place/system. It can be a few PC Servers with different HDD disks, DVD disks, or a NAS -Network Attached Storage Embedded Portable Computers with at least two duplicated HDD disks. SSD disks and Flash cards/keys are not recommended as a storage media for a long term storage of back-up files, but can be used as temporary media while backing-up.

A back-up storage(s) should be limited for access by unauthorized people, and it should be located in a safe and air conditioned room with a proper environment ranges. A dedicated personal should be allocated for accurate keeping the back-up storage, for periodic checking and updating of the back-up base, for a careful maintenance the base.

Each back-up file should be verified/compared with original one and/or with a stored one, and actual and desired checksums of the files should be verified properly while handling.

By Oleg Tverdovlev
M.Sc. - Master in The Analog & Discrete Control in Electrical &Mechanical Systems

Related resources:

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