

# Acronyms in “The Digital Image World”: References to the Vernacular You Need for Understanding the Discourse

By Frederick J. Kolb, Jr.

The creation and manipulation of digital images rests upon a confluence of technologies, many of which have not previously intersected. To the explosion of literature and discussion, each brings its own glossary, its own priorities, and its own assumptions of the obvious. Moreover, each of the technologies is a substantial contributor to the understanding, or to the implementation, or to both — whether in the creation, or in the processing and manipulation, or in the ultimate distribution and application of digital images. Thus any literature search is bound to traverse some of these intersections, and perhaps to encounter the need for interpretation.

Several threads are of near-universal concern throughout, and a prominent one is the implication and the lure of bit-rate reduction! Faced with the burgeoning literature, it has seemed obvious to many authors that bit-rate reduction should be applied in their reporting and documentation — hence the flourishing families of acronyms!

This compilation is the result of reviewing many papers, presentations, and brochures related to the hierarchy of digital imagery. It is intended as a cross-platform acronym reference, for restoration of the original context, thus contributing to a more complete understanding and evaluation of the technical literature.

AAL	ATM adaptation layer
ACATS	Advisory Committee on Advanced Television
ACM	Association for Computing Machinery
A/D	analog-to-digital
ADH	asynchronous digital hierarchy
ADPCM	adaptive data pulse code modulation
ADPCM	Association for Data Processing and Computer Management
ASDL	asynchronous digital subscriber line (1.5 Mbits/sec)
ADV	advanced digital video
AES	audio embedded serial
AES	Audio Engineering Society
AIIM	Association for Information and Image Management

AMI	alternate mark inversion
AMSTV	Association for Maximum Service Television
ANSI	American National Standards Institute
APR	automated pixel restoration
ARMA	Association of Records Managers and Administrators
ARP	address resolution protocol
ARPA	Advanced Research Project Administration
ASC	American Society of Cinematographers
ASIC	application specific integrated circuit
ATDM	asynchronous time-division multiplexing
ATEL	Advanced Television Evaluation Laboratory
ATM	asynchronous transmission mode
ATRC	Advanced Television Research Consortium
ATSC	Advanced Television Systems Committee
ATTC	Advanced Television Test Center
ATV	advanced television, Grand Alliance standard
AU	access unit
AWCDM	adaptively weighted code-division multiplexing
BER	bit-error rate
B-ISDN	broadcast integrated services digital network
BPSK	binary phase-shift keying
BRI	basic rate interface, cf. ISDN
BRR	bit-rate reduction
CAP	carrierless amplitude/phase modulation
CBR	constant bit rate
CCIR	International Radio Consultative Committee (now ITU-R)
CD-I	compact disc — interactive
CDDI	cable-distributed data interface
CDS	color difference signal
CDS	correlated double sampling
CDV	cell delay variation
CGATS	Committee for Graphic Arts Technology Standards
CIE	International Commission on Illumination
CIRC	cross-interleaved Reed-Solomon code

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**SPECIAL FEATURE**

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CLP	cell-loss priority	DTH	direct-to-home
CLR	cell-loss ratio	DTS	decode time stamp
COFDM	coded orthogonal frequency-division multiplexing	DTTB	digital terrestrial television broadcasting
CPE	customer premises equipment	DVB	digital video broadcasting
CRC	cyclic redundancy check	DVC	digital videocassette
CS	convergence sublayer	DVD	digital videodisk
CTL	Cable Television Laboratories	DVD	digital versatile disk
D/A	digital-to-analog	DVE	digital video effects
DAB	digital audio broadcasting	DVTR	digital video temporal redundancy
DAVIC	Digital Audio-Video Council	EAV	end-of-active video
DAW	digital audio workstation	EBU	European Broadcasting Union
DCS	digital cross-correction system	ECC	error-correction coding
DCT	discrete cosine transform	ECL	encoder control list
DDR	digital disk recorder	EDH	error-detection hierarchy
DFE	decision feedback equalization	EDIP	electronic document image processing
DLP	digital light processor	EDL	edit decision list
DNG	digital news gathering	EDTV	enhanced definition television
DPCM	differential pulse code modulation (telecommunications)	EDTV-I	enhanced definition television, aspect 4:3
DS-0	digital telcom service under DPCM (64 kbits/sec)	EDTV-II	enhanced definition television, aspect 16:9
DS-1	digital telcom service under DPCM (1.54 Mbits/sec)	EIA	Electronic Industries Association
DS-2	digital telcom service under DPCM (6.31 Mbits/sec)	EIC	engineer in charge
DS-3	digital telcom service under DPCM (44.7 Mbits/sec)	EPS	graphics file format
DS-4	digital telcom service under DPCM (275 Mbits/sec)	ERP	emitted radio frequency power
E-0	European digital telcom under DPCM (64 kbits/sec)	ES	elementary stream
E-1	European digital telcom under DPCM (2.05 Mbits/sec)	ETSI	European Telecommunication Standards Institute
E-2	European digital telcom under DPCM (8.45 Mbits/sec)	EVC	enhanced video connector
E-3	European digital telcom under DPCM (34.4 Mbits/sec)	FC	Fibre Channel
E-4	European digital telcom under DPCM (139 Mbits/sec)	FCS	frame check sequence
E-5	European digital telcom under DPCM (565 Mbits/sec)	FDDI	fiber-distributed data interface
DSB	digital sound broadcasting	FDM	frequency-division multiplexing
DSCQS	double stimulus subjective quality	FFT	fast Fourier transform
DSP	digital signal processor	FIFO	first in-first out
DSP	digital signal processing	FIR	first impulse response
DSRC	David Sarnoff Research Center	FIT	file transfer protocol
DSS	digital satellite system	FIT	frame interline transfer
		FITL	fiber-in-the-loop
		FPU	field pickup unit
		FSN	full-service network
		FT	frame transfer
		FTH	fiber-to-the-home
		FTP	file transfer protocol
		FTTC	fiber-to-the-curb
		GA	Grand Alliance
		GCRA	generic cell rate algorithm
		GIF	graphics file format
		GLM	gigabaud link module
		GOP	group of pictures

## SPECIAL FEATURE

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GPI	graphics	LBR	laser beam recorder
GPS	global positioning system	LEC	local exchange carrier
GUI	graphical user interface	LEO	low earth orbit
HANC	horizontal ancillary data space	LNA	low noise amplifier
HBI	horizontal blanking interval	LNB	low noise block converter
HDSDL	high bit-rate digital subscriber line (750 kbits/sec)	LUT	luminance transfer function
HDTV	high-definition television, defined by GA (1.99 Gbits/sec)	LUT	lookup table
HEC	header error control	LZW	Lempel-Ziv-Welch encoding
HFC	hybrid fiber coax	MADI	multichannel audio digital interface
HTML	HyperText Markup Language	MCI	media control interface
HIPPI	high-performance parallel interface	MCM	multicarrier modulation, cf. OFDM
HPGL	graphics file format	MCPC	multiple channel per carrier
HVS	human visual system	MDF	main distribution frame
ICAP	interactive communications application protocol	MDPREF	multidimensional preference analysis
ICC	International Color Consortium	MFLOPS	million operations per second
ICR	input control register	MIB	management information base
IDCT	inverse discrete cosine transform	MMCD	multimedia CD
IDTV	improved-definition television	MMDS	multichannel multipoint distribution service
IEC	International Electrotechnical Commission	MOPS	million operations per second
IEEE	Institute of Electrical and Electronics Engineers	MPEG	Moving Pictures Experts Group
IFFT	inverse fast Fourier transform	MRS	medium range search
IITF	Information Infrastructure Task Force	MSPS	million samples per second
IMA	Interactive Multimedia Association	MTBF	mean time between failures
IOFS	innovative optical fiber software	MTF	modulation transfer function
IQ	inverse quantization	MUSE	multiple sub-Nyquist sampling encoding
IQR	impairment quality rating	NAB	National Association of Broadcasters
IS&T	Society for Imaging Science and Technology	NAPM	National Association of Photographic Manufacturers
ISCC	Inter-Society Color Council	NCTA	National Cable Television Association
ISDB	integrated services digital broadcasting	NEXT	near-end cross talk
ISDN	integrated services digital network	NFS	network file system
ISI	intersymbol interference	NII	National Information Infrastructure
ISO	International Organization for Standardization	NIST	National Institute of Standards and Technology
IT	interline transfer	NIT	network information table
ITC	International Conference on Telecommunications	NNI	network-node interface
ITFS	instructional television fixed system	NOI	FCC notice of inquiry
ITM	isosynchronous transfer mode	NRPM	FCC notice of proposed rulemaking
ITS	insertion test signal	NRZI	nonreturn to zero, inverted
ITS	Institute for Telecommunications Science	NSIC	National Storage Industry Consortium
ITU	International Telecommunication Union	NTIA	National Telecommunications and Information Administration
ITU-R	ITU Radio Communications Committee	NTSC	National Television System Committee (168 Mbits/sec)
IXC	interexchange carrier	NVOD	network video-on-demand
JPEG	Joint Photographic Experts Group	OAM	operations and maintenance
LAN	local area network	OC	optical carrier
		OCR	optical character recognition
		OFDM	orthogonal frequency domain multiplexing

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OPCR	original program clock reference	SAW	surface acoustic wave
OSA	Optical Society of America	SBE	Society of Broadcast Engineers
OSI	open systems interconnection	SCM	single-carrier modulation
OSTA	Office of Space and Terrestrial Applications	SCPC	single channel per carrier
OTF	optical transfer function	SCR	system clock reference
PAT	program association table	SCSI	small computer systems interface
PCL	printer control language	SD	super disk
PCR	peak cell rate	SDDI	serial digital data interface
PCR	program clock reference	SDDI	shielded distributed data interface
PCRI	program clock reference interpolated	SDH	synchronous digital hierarchy, cf. SONET
PCR <sub>V</sub>	program clock reference value	OC-1	optical data channel (51.8 Mbits/sec)
PCX	graphics file format	OC-3	optical data channel (155.5 Mbits/sec)
PDF	portable document format	OC-12	optical data channel (622 Mbits/sec)
PDH	production digital hierarchy, cf. DPCM	OC-48	optical data channel (2.48 Gbits/sec)
PDH	plesiochronous digital hierarchy	OC-96	optical data channel (4.98 Gbits/sec)
PDI	packet identification number	OC-192	optical data channel (9.95 Gbits/sec)
PDP	plasma display panel	SDI	serial digital interface
PDU	protocol data unit	SDIF	Sony digital interface format
PES	packetized elementary stream	SDTV	standard definition television
PIC	graphics file format	SER	signal-to-error ratio
PICT	graphics file format	SFN	single frequency network
PID	packet identification number	SI	spatial information content
PIP	programmable image processor	SIAM	Society for Industrial and Applied Mathematics
PLL	phase lock loop	SID	Society for Information Display
PMD	physical medium dependent	SIGGRAPH	Special Interest Group on Computer Graphics, cf. ACM
PMT	program map table	SIR	sustained information rate
POTS	plain old telephone service (DS-0)	SLIP	serial line internet protocol
PPP	point-to-point protocol	SMDP	status monitoring and diagnostics protocol
PRI	primary rate interface	SMPTE	Society of Motion Picture and Television Engineers
PRML	partial response maximum likelihood	SONET	synchronous optical network (telecommunications)
PSI	program specific information	STS-1-	SONET ATM interface (51.8 Mbits/sec)
PSNR	peak signal-to-noise ratio	STS-3c	SONET ATM interface (155.5 Mbits/sec)
PSRN	pseudorandom noise generator	OC-12c	SONET ATM interface (622.1 Mbits/sec)
PTS	program time stamp	SP	signal parser
PVC	permanent virtual circuit	SPDIF	Sony/Philips digital interface format
QAM	quadrature amplitude modulation	SPE	synchronous payload envelope
QPSK	quadrature phase-shift keying, cf. ISDN	SPIE	Society of Photo-Optical Instrumentation Engineers
RAID	redundant array of inexpensive drives	SPSE	Society of Photographic Scientists and Engineers
RF	radio frequency	SQE	signal quality error
RIDE	real-time image distortion effects	SSA	serial storage architecture
RISC	reduced instruction set computing	STC	system time clock
RLC	run length coding	STL	system test loop
RLE	run length encoding		
RMSE	root mean squared error		
RS-PC	Reed-Solomon product code		
RTNDA	Radio and Television News Directors Association		
SAV	start-of-active video		

## SPECIAL FEATURE

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STM	synchronous transfer mode	UNI	user-network interface
STP	shielded twisted pairs	UPC	usage parameter control
STS	synchronous transport signal	UTP	unshielded twisted pairs
STU	settop unit	VANC	vertical interval data space
SVC	switched virtual channel	VBI	vertical blanking interval
SVGA	super video graphics array (829 Mbits/sec @ 800 x 600)	VBR	variable bit rate
SVGA	super video graphics array (1.25 Gbits/sec @ 1024 x 786)	VBV	video buffering verifier
SVR	server	VCI	virtual channel identifier
TAGA	Technical Association of the Graphic Arts	VDR	video disk recorder
TAR	UNIX proprietary format	VDT	video dial tone
TCM	trellis code modulation	VESA	Video Electronics Standards Association
TCMPT	Technical Council of the Motion Picture-Television Industry	VGA	video graphics array
TDM	time-division multiplexing	VITA	Volunteers for International Technical Assistance
TGA	graphics file format	VLC	variable length coding
TI	temporal information content	VLD	variable length decoder
TIFF	tagged image file format	VOD	video-on-demand
Tk-STD	transport stream target decoder	VPDN	virtual private data network
TOC	technical operations center	VPI	virtual path identifier
TRS	timing reference signal	VR	virtual reality
TRS-ID	timing reference signal identification	VRML	virtual reality modeling language
TS	transport stream	VSB	vestigial sideband
TVRO	television receive only	VT	virtual tributary
UDF	universal disk format	WAIS	wide area information server
UI	unit interval	WAN	wide area network
		WDM	wavelength division multiplexing
		WWW	World Wide Web

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## THE AUTHOR

**Frederick J. Kolb, Jr.**, retired from the Eastman Kodak Co. in 1986, having worked with them for 46 years in various areas of motion-picture film, television recording, and image processing. He is now a consultant in the fields of motion-pictures, electronic imaging, and magnetic recording.

In addition to his consulting work, Kolb is an active participant in SMPTE's standards work. A former chairman of the Standards Committee, he is currently a member of Engineering Committees A12, P3, and H19. He was an ISO/TC36 specialist from 1970 to 1994, and he served on the National Association of Photographic Manufacturers' Committee IT9 from 1988 to 1994.



Kolb earned his B.S., M.S., and Sc.D. degrees from the Massachusetts Institute of Technology. He joined the Society in 1947 and has been a Life Fellow since 1988. He was the winner of the Journal Award in 1949, the Samuel L. Warner Memorial Medal Award in 1988, and the Technicolor/Herbert T. Kalmus Gold Medal Award in 1995. The Academy of Motion Picture Arts and Sciences presented him with a Technical Achievement Award in 1991. He is also a fellow of Tau Beta Pi as well as a member of the American Association for the Advancement of Science (AAAS), ACS, the American

Institute of Chemical Engineers (AIChE), BKSTS, the Society for Imaging Science and Technology (IS&T), Sigma Xi, and Alpha Chi Sigma.