Active

Project #: B-10-F13

Center #: 10/24-6-R7190-0A0

Cost share #: Center shr #:

Rev #: 0 OCA file #:

Contract#: AGMT DTD 910429 Prime #:

Work type : RES Document : AGR

Contract entity: GTRC

Subprojects ? : N Main project #:

Project unit:

OIP

Unit code: 03.010.200

Project director(s):

DYER F B

OOD

(404)894-3539

below 1 to with the without or 學學 17 1 - 10 Ch + 20 整 在 7 20 数 2

Sponsor/division names: NCR Sponsor/division codes: 263 / ATLANTA, GA

/ 011

Award period:

910429

910829

(performance) 910829 (reports)

Sponsor amount

Cost sharing amount

Contract value Funded

New this change 20,522.00

20,522.00

Total to date

20,522.00 20,522.00

0.00

Does subcontracting plan apply ?: N

Title: PC ANIMATION INVESTIGATIONS

lebogy at how and recorded

PROJECT ADMINISTRATION DATA

OCA contact: Don S. Hasty

894-4820

Sponsor technical contact

Sponsor issuing office

MICHAEL HARRIS

(404)853-2937

K. C. BURGESS YAKEMOVIC

(404)853-2937

NCR CORPORATION

HUMAN INTERFACE TECHNOLOGY CENTER

500 TECH PARKWAY ATLANTA, GA 30316 NCR CORPORATION

HUMAN INTERFACE TECHNOLOGY CENTER

500 TECH PARKWAY ATLANTA, GA 30316

Security class (U,C,S,TS) : U ONR resident rep. is ACO (Y/N): N

Defense priority rating : N/A

Equipment title vests with:

Sponsor X GIT

N/A supplemental sheet

Administrative comments INITIATION OF PROJECT



GEORGIA INSTITUTE OF TECHNOLOGY OFFICE OF CONTRACT ADMINISTRATION

NOTICE OF PROJECT CLOSEOUT

	Closeout Notice Date 11/18/91
Project No. B-10-F13	Center No. 10/24-6-R7190-0A0_
Project Director DYER F B	School/Lab OIP
Sponsor NCR/ATLANTA, GA	
Contract/Grant No. AGMT DTD 910429	Contract Entity GTRC
Prime Contract No	
Title PC ANIMATION INVESTIGATIONS	
Effective Completion Date 910829 (Perfo	rmance) 910829 (Reports)
Closeout Actions Required:	Date Y/N Submitted
Final Invoice or Copy of Final Invo Final Report of Inventions and/or S Government Property Inventory & Rel Classified Material Certificate Release and Assignment Other	ubcontracts N
Comments	
Subproject Under Main Project No	B. C.
Continues Project No.	
Distribution Required:	
Project Director	Y Y

5

PC ANIMATION ENVIRONMENT INVESTIGATIONS

FINAL TECHNICAL REPORT

prepared for

Human Interface Technology Center NCR Corporation

by

Andrew M. Quay & William E. Price

October 29, 1991

Multimedia Technology Laboratory Office of Interdisciplinary Programs GEORGIA INSTITUTE OF TECHNOLOGY At:anta, Georgia 30332

NCR Animation Investigation

Animation is usually one of the key components of any multimedia application. It adds an important element to communication: motion and the ability to show relationships. Because of the popularity of multimedia and advancements in technology, the market is currently becoming heavily flooded with animation environments for the NCR Personal Computer (PC) and compatibles. The goal of this investigation was to pinpoint the best animation packages on the market and how these packages could be used in support of NCR HITC multimedia activities.

There are currently many excellent animation packages available on the Apple Macintosh, but the the usability of comparable packages on the PC has been very limited. Georgia Tech did hands-on testing of several popular packages and researched most of the other packages on the market. We discovered that there are still no complete packages available on the PC, but found the combination of some products to be very successful. Several new promising products have been announced, but are not currently available to the consumer. The most promising upcoming release, Macromind Director for Windows, is very far behind schedule, and is now available in a severely scaled back version known as Macromind Action!

The release of Microsoft Windows 3.0 has led to the release of a multitude of new Windows based Multimedia Authoring packages. We looked at several of these, including Icon Author, Icon Animate, Knowledge Pro, Plus, and Toolbook. We found that none of these packages are useful in developing complete multimedia applications. Icon Author is good for simple interactive video pieces when the flow of a presentation is straightforward or linear. This flow chart based system works best if the author has an idea of what actions need to happen at keypoints in their presentation. Several options are forthcoming. Autodesk has just released a Dynamic Link Library (DLL) for playing back Animator Flic files inside MS Windows. This DLL is callable from several packages, including Visual Basic and Toolbook. Autodesk has also announced a full version of Animator for Windows. This should be a powerful package for preparing outstanding animations and simple linear presentations. Using the DLL in conjunction with a more powerful package should allow for complete interactive applications. Icon Animate is a low cost and performance 2D animation package for Windows. It appears to be

simple to use, but playback speed probably suffers due to the fact that in runs in the Windows environment. Macromind has just released as new package, Action!, that appears to be the "Overview" portion of Macromind Director for the Macintosh. This will allow for simple Multimedia presentations involving audio, animation and other effects in a linear form. There is also a convertor available that will take Macromind Director files from the Macintosh and convert them into a form playable inside Windows. LINGO (the Director scripting language) also converts with the animation, this provides one method of executing interactive applications inside Windows. A full release of Director for Windows has been announced. This will allow full authoring on the PC. Authorware for Windows is also available, but its high cost rules it out for most purposes.

Windows is only a small part of the PC compatible market. Most PC's still run DOS. There are several products available in the DOS market. Animator Pro has just been released. This new version of Animator provides support for high resolution graphics modes. This improvement makes Animator Pro very good for creating linear animations. Once animations are created, the flic files can be used in several ways to create interactive shows. GRASP 4.0 is the latest release of an animation and interactive program. GRASP's most powerful feature is not its animation features but the ability to link into other programs. This allows GRASP presentations to be combined with C programs to allow for powerful possibilities. The latest version of GRASP imports Animator flics, which allows the author to create animations in the superior Animator environment, and then use GRASP and C to create interactive presentations. There are several other authoring environments available, such as Ten Core, Linkway, Storyboard Live!, AVC, Ask Me 2000 and many others. Most of these packages are incomplete or very specialized. The main advantage that most of these products have over their Windows counterparts is that they run much faster because there is no Windows overhead.

Currently, it would seem that the most promising path for NCR to take would be their existing path. NCR should continue to use Animator for graphics design and animation, and to use GRASP and C for interactive control. Now that a new version of GRASP is available that can directly read Animator files, this process is much simpler. The new high resolution modes in Animator Pro are very attractive. However, when the destination of the video output is NTSC, the current 320 by 200 is adequate and can play at a higher frame rate than the high resolution modes. The Macromind Director Windows playback module is a possible alternative, but with the Windows overhead, a fast PC is required for the delivery unit. Also,

development is required on a Macintosh. Sources inside IBM have mentioned new Authoring systems coming from them at some future time, but quality of past IBM multimedia software does not generate much hope for an outstanding package. Perhaps the best approach would be to consider developing a custom package, such as GTMedia, developed by Georgia Tech for use on the AMIGA. This would allow designing a system to NCR's requirements. Also, having access to the source code of such a package is very useful when a special functionality for a project is required. Georgia Tech has quickly discovered that no authoring system can meet all of the needs of advanced users, and that custom code is often the only solution to novel interaction schemes that require Multimedia.

Name 3D Studio	Version new Phone Number (800) 525-2763
Company Autodesk Price \$2,995 Upgra	de Price Release Date
Classification animation	
New Features	Comments 3D renderer mid-line animator Playback through Animator Pro
File Import Types PCX	GM ☐ 2-D ☑ Videodisc LI ☑ 3-D ☑ VCR CF ☐ Sprites ☐ CD-ROM C ☐ Cell Animation ☐ Video Digitizer
External Control DLL's Linking C	ode DOS driver DDE's
File Sizes	Modules 2D Shaper 3D Lofter 3D Editor Materials Editor
Hardware Requirement Video Modes VGA Display Indep. Max Colors Recommended Video Card TARGA	Software Requirements Play back Module O Available Run Time Rights Size System Load
Hard Disk RAM Sinimum CPU Recommended CPU mouse Other Hardware Required Hard Disk 20 meg 386 w/ 387 486 yes	Joysiani Edu
	Ratings
Customer Support	overall easy tasks advanced tasks authoring animation O Excellent O Good O Fair O Poor
	speed O Excellent O Good O Fair O Poor Support

Name Action!		Version 1.0),
Company Macromind	Pi	one Number (41	5) 442-0200
Price \$495 Upgrade Price	F	Release Date Fa	II 91
Classification Mulitmedia Presentations	-		
New Features	Comments		
Sound, Graphics, motion and animation. Interactive buttons to control.	"Overview" portion of Macron Includes clip media library.	nind Director.	
Create scenes, synchronize timing and action, print to video with VCR and video output card.			φ.
print to video with vort and video output card.			
File Import Types File Export Types	Animation Features	External	Device Support
PCX CGM PCX CGM	⊠ 2-D	☐ Videodis	
☐ Targa ☐ .FLI ☐ Targa ☐ .FLI ☑ BMP ☐ .DXF ☐ .BMP ☐ .DXF	☐ 3-D ☑ Sprites	□ CD-ROM	.
☐.TIFF ☐ AVC ☐ TIFF ☐ AVC ☐ .GIF ☐ .CEL ☐ .GIF ☐ .CEL	☐ Cell Animation ☐ Frame Animation	☐ Video Di ☑ Audio	gitizer
□.RIFF □ Macinto □.RIFF	☐ Paths	O A MALL	on Video Board
☐ Director	☐ Imports Animations	⊠ SoundBl ☐ MIDI	aster
	☐ Tweening of Shapes☐ Tweening of Movement		
	☐ Effects with Animation☐ Transition Effects	Comments	
	LI Transition Ellects		,
External Control DLL's Linking Code D	OS driver DDE's		
File Sizes		Modules	•
		1	2
		4	
Hardware Requirements Video Modes VGA	Software Requirements Windows 3.0, Dos 3.1	s 1	Play back Module
Video Modes VGA	Willdows 3.0, Dos 3.1	Run Time Rights	O Available
Max Colors ? (XGA)		Size	·
Recommended Video Card Hard Disk		System Load	
RAM 2Mb			. —
Minimum CPU 286 Recommended CPU 386 or 486			
mouse Recommended			
Other Hardware Required	9		
		1	
		Ratings	
Customer Support			O Poor
	0.00) 1.00.10		O Poor
		20 1000	O Poor
			O Poor
	-6-0		O Poor
	support O Excellent	O Good O Fair	O Poor
		1	

		e				
Name Animator Pro			Vers	lon 1.0		
Company Autodesk		Ph	one Num	ber 📗		
Price Upgrade Price		R	elease D	ate Au	gust 91	
Classification 2-D Animation						
New Features High Resolution Super VGA Support	Comments			_		
, ingli viassialian espei vari espesii						
				- 1		
				_#		
File Import Types File Export Types .PCX .CGM .PCX .CGM	Animation i ■ 2-D	Features		ternal Videodis	Device S	Support
☐ Targa ☐ .FLI ☐ Targa ☐ .FLI	□ 3-D			VCR		
□.BMP □.DXF □.BMP □.DXF □.TIFF □AVC	☐ Sprites ☑ Cell Animation			CD-ROM Video Di		
GIF CEL GIF CEL	☐ Frame Animatio	on		Audio	-	
☐ .RIFF ☐ Macinto ☐ .RIFF ☐ Director ☐ Director	☐ Paths	liana .		Full Motion	on Video B	oard
Director Director				MIDI	asier	
	▼ Tweening of Mo	ovement		-1-1	7	
	☐ Effects with An☐ Transition Effe		Comme	nts		
	L Transment Ente	0.0				
External Control DLL's Linking Code D	OS driver DDE's	8				
File Sizes			Mod	ules		
				4		
Hardware Requirements	Software Re	quirements				ck Module
Video Modes			Due Tie	ne Rights	O Availa	ble
Max Colors	ę		Hull Till	Sze	-	
Recommended Video Card			Syst	em Load		
Hard Disk RAM						
Minimum CPU						
Recommended CPU						
mouse Other Hardware Required						
,	,					
			Ratir	ngs		
Customer Support		O Excellent			O Poor	
	ous, tusiis	O Excellent	⊚ Good		O Poor	
; *		O Excellent	O Good		O Poor	
		ExcellentExcellent	O Good		O Poor	
		Excellent			O Poor	
. 9	0,000	O Excellent			O Poor	
	oopport [e

· · · · · · · · · · · · · · · · · · ·			_			_
Name Ask Me 2000 Profes				Version		
Company Innovation Communication	ation Systems, Inc	c. (ICS)	Ph	one Number		
Price \$1,795	Upgrade Price		R	elease Date		
Classification animation						
New Features		Comments		··		
		scripting Ask-Me 2000 is No support for V		w end, cheap.		
Macinto Director Marga Macinto Director Marga PCX □ Targa □ Targa □ BMP □ DXF □ BMP □		Animation 2-D 3-D Sprites Cell Animation Frame Animatic Paths Imports Animat Tweening of St Tweening of Mo Effects with An	on tions napes ovement nimation	☐ Vide ☐ VCR ☐ CD-F ☐ Vide ☐ Audi ☑ Full I	ROM o Digitizer o Motion Video Boa ndBlaster	
External Control DLL's Li	nking Code DC	OS driver DDE's	S			
File Sizes				Modules		
Hardware Require	ements	Software Re	quirements	} !	Play back	
Video Modes				Run Time Ri	O Available	9
Max Colors					Size	
Recommended Video Card				System L	oad	
Hard Disk					· · · · · · · · · · · · · · · · · · ·	
RAM Minimum CPU	4			٠		
Recommended CPU						
mouse						
Other Hardware Required						
		-		Ratings		
Customer Support			110.00	O Good O F		
		0 0.0 0 0.00		O Good O F		
 				O Good O F		
	a			O Good O F	0.000	
				O Good OF		
		00000		O Good O F		
	5	oapport	20			
	ş					

Name Authorware Profes	sional		Version wi	ndows ver
Company Authorware, Inc.		PI	none Number	
Price	Upgrade Price		Release Date fire	st half '91
Classification				
New Features support windows 3.0 extension	ns	Very Expensive		
	*			*
	/		\	
File Import Types File E	port Types	Animation Features		Device Support
☐ .PCX ☐ .CGM ☐ .PCX ☐ Targa ☐ .FLI ☐ Targa ☐ .BMP ☐ .DXF ☐ .BMP		2-D 3-D	☑ Videodi □ VCR	sc
BMP DXF BMP	D.DXF	Sprites	CD-RON	
IN TIFF □ AVC IN TIFF □ .GIF □ .CEL □ .GIF		☐ Cell Animation ☐ Frame Animation	☐ Video D Audio	igitizer
☐ .RIFF ☐ Macinto ☐ .RIFF		Paths		ion Video Board
☐ Director ☐ Direct	' [c	imports Animations Tweening of Shapes		naster
		☐ Tweening of Movement☐ Effects with Animation	Comments	
		Transition Effects		
.				
External Control DLL's	Linking Code LI DOS	driver DDE's		•
File Sizes			Modules	
	`		1	
			L	
Hardware Requ	Irements	Software Requirement	e	Play back Module
Video Modes		Continue negationion	ĺ	O Available
Max Colors			Run Time Right Siz	
Recommended Video Card		*	System Loa	
Hard Disk				
Minimum CPU				
Recommended CPU				
mouse Other Hardware Required				
			J	
			Ratings	
Customer Suppor	t		O Good O Fair	
	· ·		O Good O Fair	1000
	ac ac		O Good O Fair	0-0 10 10 10 1
			O Good O Fair	=
	_		O Good O Fair	
		support O Excellent	O Good O Fair	O Poor

Name DeluxePaint Animation		Version 1.0
Company	Ph	one Number (800) 245-4525
Price \$135 Upgrade Price	R	elease Date
Classification		
New Features	Comments	
File Import Types Z.PCX	Animation Features 2-D 3-D Sprites Cell Animation Frame Animation Paths Imports Animations Tweening of Shapes Tweening of Movement Effects with Animation Transition Effects	External Device Support Videodisc VCR CD-ROM Video Digitizer Audio Full Motion Video Board SoundBlaster MIDI Comments
External Control DLL's Linking Code D	DOS driver DDE's	9
File Sizes		Modules
Hardware Requirements	Software Requirements	Play back Module
Video Modes 320 x 200		O Available
Max Colors 256		Run Time Rights Size
Recommended Video Card	ж.	System Load
Hard Disk 5 meg 640K		
Minimum CPU		
Recommended CPU yes		
Other Hardware Required	ų	
		Ratings
Customer Support		O Good O Fair O Poor
	out, inche	O Good O Fair O Poor O Good O Fair O Poor
	441411004145115	O Good O Fair O Poor
]		O Good O Fair O Poor
	speed O Excellent	O Good O Fair O Poor
	support O Excellent	O Good O Fair O Poor

Name Director	Version new .
Company Macromind	Phone Number
Price \$999 Upgrade Price	Release Date end 91 ??
Classification animation/authoring	1
New Features	Comments
	Price may be much higher. New release of Beta playback module is \$900. Works in Multimedia Windows.
File Import Types PCX CGM Targa FILE BMP DDXF TIFF AVC GIF CEL RIFF Macinto Director FILE Export Types FILE Export Types	Animation Features
External Control DLL's Linking Code D	DOS driver DDE's
File Sizes	Modules
Hardware Requirements	Software Requirements Play back Module
Video Modes	O Available
Max Colors	Run Time Rights Size
Recommended Video Card	System Load
Hard Disk RAM Minimum CPU Recommended CPU mouse Other Hardware Required	
	Ratings
Customer Support	overall easy tasks advanced tasks authoring animation speed O Excellent O Good O Fair O Poor
*	support O Excellent O Good O Fair O Poor

Price Upgrade Price \$349 Release Date Classification New Features Comments	
Price Upgrade Price \$349 Release Date Classification	
New Festures Comments	
ITOTI I VALUI GO	
File Import Types File Export Types Animation Features External Device Support Overlapport Overlapport	
External Control DLL's Linking Code DOS driver DDE's	
File Sizes Modules	
Hardware Requirements Software Requirements Play back Mod	dule
Video Modes Up to 1,280 X 1,024 256 Recommended Video Card Hard Disk RAM Vinimum CPU Recommended CPU mouse Other Hardware Required Available Run Time Rights Size System Load Other Hardware Required	
Ratings	
Customer Support easy tasks advanced tasks authoring animation speed support O Excellent O Good O Fair O Poor	

	Vanish and Table 1
Name Guide	Version
Company Owl International	Phone Number
Price \$500 Upgrade Price	Release Date
Classification]
New Features	Comments
embed animations with audio and music	older version was: good for text intensive apps w/ simple graphics, audio, and video. Inadequate for animation, video, hi-res.
File import Types File Fynort Types	Animation Features External Device Support
File Import Types PCX	2-D
External Control DLL's Linking Code	DOS driver DDE's
File Sizes	Modules
Hardware Requirements	Software Requirements Play back Module
Video Modes	O Available
Max Colors	Run Time Rights Size
Recommended Video Card	System Load
Hard Disk RAM Minimum CPU Recommended CPU mouse Other Hardware Required	
	Ratings
Customer Support	overall O Excellent O Good O Fair O Poor easy tasks O Excellent O Good O Fair O Poor advanced tasks O Excellent O Good O Fair O Poor authoring O Excellent O Good O Fair O Poor animation O Excellent O Good O Fair O Poor
,	speed O Excellent O Good O Fair O Poor support O Excellent O Good O Fair O Poor
	Support Tall O 1001

Name Icon Animate	Version 3.0
Company Aimtech Corp.	Phone Number (603) 883-0220
Price Upgrade Pric	
Classification animation	7
New Features	그 Comments
New Teatures	Comments
File Import Types PCX CGM Targa FLI BMP DXF TIFF AVC GIF CEL RIFF Macinto Director File Export Types PCX CGM PCX CGM PCX CGM Targa FLI RIFF AVC RIFF AVC RIFF Director	Animation Features 2-D
External Control DLL's Linking Code	DOS driver DDE's
File Sizes	Modules
Hardware Requirements	Software Requirements Play back Module
Video Modes	O Available
Max Colors	Run Time Rights Size
Recommended Video Card	System Load
Hard Disk	
RAM Minimum CPU	
Recommended CPU	
mouse Cther Hardware Required	
Other Haldware Required	
	Ratings
	overall O Excellent O Good O Fair O Poor
Customer Support	easy tasks O Excellent O Good O Fair O Poor
	advanced tasks O Excellent O Good O Fair O Poor
1 1	authoring O Excellent O Good O Fair O Poor
	animation O Excellent O Good O Fair O Poor
	speed O Excellent O Good O Fair O Poor
	support O Excellent O Good O Fair O Poor

Name Icon Author		Version 4.0
Company Aimtech Corp.	PI	none Number (603) 883-0220
Price \$4,995 Upgrade Price		Release Date
Classification authoring		
New Features 3.0 DDE, DLL animation scripts, bitmapped images, Windows meta file, Pagemaker 4.0 New Interface, New toolkits, MDI. Includes 6 licenses and 4 days training.	Comments icon based authoring Good for pre-planned videod learning applications. Difficu structure of your flow charts defined.	It to change
File Import Types PCX	Animation Features 2-D 3-D Sprites Cell Animation Frame Animation Paths Imports Animations Tweening of Shapes Tweening of Movement Effects with Animation Transition Effects	External Device Support Videodisc VCR CD-ROM Video Digitizer Audio Full Motion Video Board SoundBlaster MIDI Comments
External Control DLL's Linking Code D	OS driver 🔀 DDE's	MAN.
Hardware Requirements Video Modes Max Colors Recommended Video Card	Software Requirement	O Available Run Time Rights Size
Hard Disk RAM Minimum CPU Recommended CPU mouse Other Hardware Required		System Load
0.004.00.00.00.00.00.00.00.00.00.00.00.0	overall O Excellent	Ratings Good O Fair O Poor
Customer Support	easy tasks advanced tasks authoring animation speed O Excellent O Excellent O Excellent	O Good

Name Knowledge Pro	Version
Company Knowledge Garden	Phone Number
Price \$695 Upgrade Pric	e Release Date
Classification Hyper Based]
New Features similiar to Toolbook	Application Development (Expert System Tradition) event driven, message based, object orientated language
File Import Types PCX	Animation Features 2-D
External Control DLL's Linking Code	DOS driver 🔀 DDE's
File Sizes	Modules
Hardware Requirements	Software Requirements Play back Module
Video Modes	Windows Available
Max Colors	Run Time Rights
Recommended Video Card	System Load
Hard Disk RAM Minimum CPU Recommended CPU mouse Other Hardware Required	
	Ratings
Customer Support	overall easy tasks advanced tasks authoring O Excellent O Good O Fair O Poor O Excellent O Good O Fair O Poor O Excellent O Good O Fair O Poor
	animation O Excellent O Good O Fair O Poor
	speed Excellent O Good O Fair O Poor
*	support O Excellent O Good O Fair O Poor

Company Spinneker Software Phone Number Price Release Date Price Release Date Price Release Date Price Phone Number Price Pr		Name Plus					Vers	ion 2.0	0	
Comments New Features New support for DDE and DLL's. Faster. New Support for DDE and DLL's. Faster.	ŀ	Company Spinnaker	Software			Ph	one Num	ber _		
New Features Not as flexible as Toolbook. Imports Hypercard stack with Mac version. Also available as Oracle Card, which is Plus with Oracle SQL extensions.	1	Price \$495	Up	grade Price] я	elease I	Date _		
New Features Not as flexible as Toolbook. Imports Hypercard stack with Mac version. Also available as Oracle Card, which is Plus with Oracle SQL extensions.		Classification Hype	rcard Like			_				
Not as flexible as Toolbook, Imports Hypercard stack with Mac version. Also available as Oracle Card, which is Plus with Oracle SQL extensions. File Import Types	0				Commente					
Pile Import Types	1		and DLL's. F	aster.		s Toolbook. I	mports Hy	percard		
External Device Support Pox OGM OCH OC										
PCX		[IICII IS FIUS WIL	II OIAGE S	۳		
PCX										
PCX	1	•								
Targa FLI	F	ile import Types	File Expor	t Types	Animation	Features	Ex	ternal	Device \$	Support
BMP DXF BMP DXF System Load CD-ROM Video Digitizer Auto Director Dir		.PCX .CGM	PCX [CGM				Videodi		
Gif CEL Riff Macinto Director Director Paths Riff Director Director Paths Riff Director Director Paths Riff Riff Director Director Paths Riff						- 1			А	1
RETERING Macinto Director Director		.TIFF AVC	The second secon		☐ Cell Animation				igitizer	
Director				J.CEL		on	-		ion Video E	Board
External Control DLL's Linking Code DOS driver DDE's Hardware Requirements Video Modes Max Colors	9	Director	☐ Director						laster	
External Control DLL's Linking Code DOS driver DDE's Hardware Requirements Software Requirements Play back Modules Pl										
External Control DLL's Linking Code DOS driver DDE's Hardware Requirements Software Requirements Play back Module Nax Colors					☐ Effects with A	nimation	Comme	nts		
Hardware Requirements Video Modes Max Colors Recommended Video Card Hard Disk RAM Minimum CPU Recommended CPU mouse Other Hardware Required Customer Support Customer Support Customer Support Customer Support advanced tasks advanced tasks authoring animation speed Available Run Time Rights free but costs \$495 Size System Load Ratings Customer O Good O Fair O Poor O Excellent © Good O Fair O Poor O Excellent O Good O Fair O Poor						cis				- 1
Hardware Requirements Video Modes Max Colors Max Colors Recommended Video Card Hard Disk RAM Minimum CPU Recommended CPU mouse Other Hardware Required Customer Support Customer Support Customer Support Customer Support authoring animation speed Play back Module Available Run Time Rights Free but costs \$495 Size System Load Ratings Cyerall easy tasks advanced tasks authoring animation speed Cuscellent Good Fair O Poor C Excellent Final Exce	E	xternal Control 🔀 D	LL's 🔲 Linkir	ng Code 🔲 D	OS driver 🔀 DDE	's				
Hardware Requirements Video Modes Max Colors Max Colors Recommended Video Card Hard Disk RAM Minimum CPU Recommended CPU mouse Other Hardware Required Customer Support Customer Support Customer Support authoring animation speed Software Requirements Play back Module Available Run Time Rights free but costs \$495 Size System Load Ratings Customer Support easy tasks advanced tasks authoring animation speed Sociellent Good Fair O Poor Excellent Fire but costs \$495 Fir		File Sizes		٦ .			Мос	iules		
Video Modes Max Colors Recommended Video Card Hard Disk RAM Minimum CPU Recommended CPU mouse Other Hardware Required Customer Support Customer Support Customer Support Customer Support advanced tasks advanced tasks authoring animation speed Available Run Time Rights free but costs \$495 Size System Load RatIngs Customer O Fair O Poor Excellent © Good O Fair O Poor			. *							
Video Modes Max Colors Recommended Video Card Hard Disk RAM Minimum CPU Recommended CPU mouse Other Hardware Required Customer Support Customer Support Customer Support Customer Support advanced tasks advanced tasks authoring animation speed Available Run Time Rights free but costs \$495 Size System Load RatIngs Customer O Fair O Poor Excellent © Good O Fair O Poor	ı	[
Video Modes Max Colors Recommended Video Card Hard Disk RAM Minimum CPU Recommended CPU mouse Other Hardware Required Customer Support Customer Support Customer Support Customer Support advanced tasks advanced tasks authoring animation speed Available Run Time Rights free but costs \$495 Size System Load RatIngs Customer O Fair O Poor Excellent © Good O Fair O Poor								L		
Max Colors Recommended Video Card Hard Disk RAM Minimum CPU Recommended CPU mouse Other Hardware Required Customer Support Customer Support advanced tasks authoring animation speed Run Time Rights free but costs \$495 Size System Load RatIngs RatIngs Customer O Poor O Excellent O Good O Fair O Poor				ents	Software R	equirements				
Recommended Video Card Hard Disk RAM Minimum CPU Recommended CPU mouse Other Hardware Required Customer Support Customer Support Customer Support advanced tasks advanced tasks authoring animation speed Customer Support Size System Load Ratings Overall easy tasks advanced tasks advanced tasks authoring animation speed	1	Video Modes					Dua Ti	Di-h4		
Hard Disk RAM Minimum CPU Recommended CPU mouse Other Hardware Required Customer Support Customer Support Customer Support advanced tasks advanced tasks authoring animation speed Customer Support Customer		Max Colors		_			Hun II			DSIS \$495
RAM Minimum CPU Recommended CPU mouse Other Hardware Required Customer Support Customer Support Customer Support advanced tasks advanced tasks authoring animation speed Second Office Off	R					G.	Sys	tem Loa	d	
Minimum CPU Recommended CPU mouse Other Hardware Required Customer Support Customer Support Overall easy tasks advanced tasks advanced tasks authoring animation speed Ratings Overall OScood OFair OPoor OExcellent OGood OFAIR OPOOR	1				1					
Other Hardware Required Customer Support Overall easy tasks advanced tasks advanced tasks authoring animation speed Ratings Overall easy tasks advanced tasks advanced tasks authoring animation speed			9							
Other Hardware Required Customer Support Overall easy tasks advanced tasks authoring animation speed Ratings Overall easy tasks O Excellent O Good O Fair O Poor O O Excellent O Good O Fair O Poor O O Excellent O Good O Fair O Poor O O Excellent O Good O Fair O Poor O O O O O O O O O O O O O O O O O O										
Customer Support Overall easy tasks advanced tasks authoring animation speed Ratings Overall © Excellent © Good O Fair O Poor O Excellent O Good O	١,									
overall easy tasks advanced tasks authoring animation speed Overall Overall		<u> </u>	1		*					
easy tasks advanced tasks authoring animation speed easy tasks O Excellent			v				Rati	ngs		
easy tasks advanced tasks advanced tasks authoring animation speed O Excellent		Customer	Support		overall	Excellent	O Good	O Fair	O Poor	
authoring O Excellent			2266011			-			-	
animation O Excellent O Good O Fair O Poor Speed O Excellent O Good O Fair O Poor	1			*						
speed O Excellent @ Good O Fair O Poor										
					*:				1,000	
					•	200				

Name Storyboard Live!	Version
Company IBM	Phone Number
Price \$500 Upgrade Price	Release Date
Classification	
New Features	Comments
	low-end presentations modify and create animated sequences
File Import Types PCX	Animation Features
External Control DLL's Linking Code	DOS driver DDE's
File Sizes	Modules Story Editor Story Teller Picture Maker Picture Taker
Hardware Requirements	Software Requirements Play back Module
Video Modes VGA	O Available
Max Colors	Run Time Rights
Recommended Video Card	Size System Load
Hard Disk	
RAM Minimum CPU	
Recommended CPU	
mouse	
Other Hardware Required note: corrupts Targa to 256	
colors	L
	overall O Excellent
Customer Support	overall O Excellent
	advanced tasks O Excellent O Good O Fair O Poor
	authoring O Excellent @ Good O Fair O Poor
	animation O Excellent O Good Fair O Poor
	speed O Excellent O Good S Fair O Poor
	support O Excellent O Good O Fair O Poor

- Name	Toolbook		Version 1.5
Company	Asymetrix	F	Phone Number
Price	\$300 Upgrade	Price \$75	Release Date June 1991
Classific	ation HyperMedia	—	
New For 60 plus in Direct in Support Pushbut message	eatures multimedia extensions for MM Wind nport graphics in several formats, for large bitmaps. Improved DDE, tons and Dialog Boxes. Windows e translation.	Comments lows Very flexible. Open ended v	with DLL features.
☐ Targa ☐ ☐ .BMP ☐ ☐ .TIFF ☐ .GIF ☐	Types File Export Type CGM PCX CGM FLI DXF BMP DXF AVC CITIFF AVC CITIFF CACC CITIFF CACCC CACCC CITIFF	Animation Features 2-D 3-D Sprites Cell Animation Frame Animation Paths Imports Animations Tweening of Shapes Tweening of Movement Effects with Animation Transition Effects	External Device Support Videodisc VCR CD-ROM Video Digitizer Audio Full Motion Video Board SoundBlaster MIDI Comments Device support through DLL's.
External C	ontrol 🗷 DLL's 🔲 Linking Code	☐ DOS driver DDE's	
File Sizes			Modules /
,	Hardware Requirements Video Modes Windows VGA Max Colors 256	Software Requiremen Windows 3.0	Play back Module Available Run Time Rights Size
	Hard Disk RAM 1:5 meg Sinimum CPU 286 nended CPU 386 mouse yes		System Load
			Ratings
	Customer Support Free for 90 days. 900 number or support agreement. Excellent BBS for users.	easy tasks advanced tasks authoring animation speed © Excellen O Excellen O Excellen	at O Good O Fair O Poor