Form PTO-1595 (Rev. 08/05) OMB No. 0651-0027 (exp. 06/30/2008)

U.S. DEPARTMENT OF COMMERCE
United States Patent and Trademark Office

	United States Patent and Trademark Office TION COVER SHEET		
	ENTS ONLY		
To the Director of the U.S. Patent and Trademark Office:	Please record the attached documents or the new address(es) below.		
Name of conveying party(les)	Name and address of receiving party(ies)		
Raycer, Inc.	Name: Apple Computer, Inc.		
Additional name(s) of conveying party(ies) attached?   Yes  N	o Internal Address:		
3. Nature of conveyance:	Street Address: One Infinite Loop		
Execution Date(s) 11/24/1999	City: Cupertino		
☑ Assignment ☐ Merger	State: California		
☐ Security Agreement ☐ Change of Name	Country: U.S.A. Zip: 95014		
☐ Joint Research Agreement	Additional name(s) & address(es) attached ☐ Yes ☒ No		
Government Interest Assignment	Administrating(s) & sociossics) straction ( 1.66 K3 146		
☐ Executive Order 9424, Confirmatory License			
4. Application or patent number(s):   This document is being filed	I together with a new application.		
A. Patent Application No.(s): 09/724,663	B. Patent No.(s):		
Additional number	rs əttached? ☐ Yes  ⊠ No 		
Name and address to whom correspondence concerning docume should be mailed:	ent 6. Total Number of applications and patents Involved: 1		
Name; S. Craig Hemenway Internal Address: Dorsey & Whitney LLP Street Address: Republic Plaza Bullding, Suite 4700 370 Seventeenth Street Denver State: Colorado	7. Total fee (37 CFR 1.21(h) & 3.41); \$40,00  Authorized to be charged by credit card  Authorized to be charged to deposit account  Enclosed  None required (government interest not affecting title		
Zip: 80202-5647 Phone Number: (303) 629-3400 Fax Number: (303) 629-3450 Email Address: hemenway.craig@dorsey.com	8. Payment Information a. Credit Card Last 4 Numbers Expiration Date b. Deposit Account Number 04-1415 Authorized User Name S. Craig Hemenway		
DO NO:	T USE THIS SPACE		
9. Signature	4(21/4)		
S. Craig Hemeriway Signature	Date		
Name of Person Signing Total number of p	ages including cover sheet, attachments, and document: 7 sheet) should be faxed to (571) 273-0140, or mailed to:		
Mail Stop Mesignment Recordation Services, Direct	ctor of the USPTO, P.O. Box 1450, Alexandria, VA 22313-1450		

PATENT REEL: 017520 FRAME: 0952

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### ASSIGNMENT

### RAYCER, INC. TO APPLE COMPUTER, INC.

WHEREAS, RAYCER, INC. ("RAYCER"), formerly known as Silicon Engines, Inc., a corporation of the State of Delaware, having a place of business at 2585 East Bayshore Frontage Road, Palo Alto, California 94303 (hereinafter "Assignor") is holder and owner of a certain right, title and interest in and to certain United States and International Letters Patents and applications for Letters Patents, all of which are identified on Schedule A attached hereto, together with the inventions disclosed therein and to any corresponding international and/or foreign applications; and

WHEREAS, APPLE COMPUTER, INC. ("APPLE"), a corporation of the State of California, having a place of business at One Infinite Loop, Cupertino, California 95014 (hereinafter "Assignee") is desirous of acquiring Assignor's right, title and interest in and to the aforesaid Letters Patents and applications for Letters Patent and any corresponding foreign and international Letters Patents and applications for Letters Patent, together with the inventions disclosed therein, and any and all causes of action and rights of recovery for past infringement of said Letters Patents, and all of the rights vested in said Assignor by virtue of any and all instruments of assignment concerning the aforesaid Letters Patents and applications for Letters Patents and applications for Letters Patent, and/or by virtue of other instruments pursuant to which Assignor became vested with said ownership, including Assignor's right, title and interest in and to any and all improvements acquired pursuant to the terms of said instruments of assignment.

NOW THEREFORE, in consideration of the sum of One United States Dollar (\$1.00) and for other good and valuable consideration received by Assignor from Assignee, the receipt in full of which is hereby acknowledged:

- 1. Assignor hereby sells, assigns, transfers and conveys unto Assignee, Assignor's entire right, title and interest in and to said Letters Patents, invention disclosures, United States applications for Letters Patent and Letters Patents to be granted thereon, together with the inventions disclosed in said applications, and all Letters Patents of the United States and international patents and patents of foreign countries which may be granted thereon, including each and every Letters Patent granted on any application which is a division, substitution or continuation of the Letters Patent and applications therefor specifically identified in Schedule A and in and to each and every reissue and extension of said Letters Patent.
- 2. Assignor further sells, assigns, transfers and quit claims unto Assignce all of Assignor's rights and interest, past and future, acquired by Assignor pursuant to the terms and provisions of assignments from the inventors, whether acquired directly or indirectly through an intervening assignment in the chain of title, and/or by virtue of other instruments pursuant to which Assignor became vested with said ownership, including the right, title and interest in and to any and all improvements acquired pursuant to the terms of said instruments of assignment.

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- 3. Assignor further sells, assigns, transfers and conveys unto said Assignee Assignor's right, title and interest in and to any and all causes of action and rights of recovery for past infringement of the Letters Patents herein assigned in the United States and internationally according to the rights conveyed by the Letters Patents and applications for Letters Patent.
- 4. Assignor hereby covenants and agrees to cooperate with Assignee whereby the latter may enjoy to the fullest extent the right, title and interest herein conveyed. Such cooperation shall include prompt execution of all papers prepared at the expense of Assignee which are deemed necessary or desirable by Assignee to perfect in it the right, title and interest herein conveyed.
- 5. The terms, covenants and provisions of this assignment shall inure to the benefit of Assignee, its successors, assigns and/or other legal representatives, and shall be binding upon Assignor, its successors, assigns and/or other legal representatives.

IN WITNESS WHEREOF, Assignor has executed and delivered this assignment instrument this 24 day of November, 1999, at Palo Alto, California, USA.

RAYCER, INC.

	TIENDERI SUU CEO	
his	IN WITNESS WHEREOF, Assignee agrees to and accepts this assignment instruded and accepts the assignment instruction of November, 1999, at, California, USA.	ment
	APPLE COMPUTED TWO	

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Ву			
Name			<del></del> -
Title		•	

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- 3. Assignor further sells, assigns, transfers and conveys unto said Assignse Assignor's right, title and interest in and to any and all causes of action and rights of recovery for past infringement of the Letters Patents herein assigned in the United States and internationally according to the rights conveyed by the Letters Patents and applications for Letters Patent.
- 4. Assignor hereby covenants and agrees to cooperate with Assignee whereby the latter may enjoy to the fullest extent the right, title and interest herein conveyed. Such cooperation shall include prompt execution of all papers prepared at the expense of Assignee which are deemed necessary or desirable by Assignee to perfect in it the right, title and interest herein conveyed.
- 5. The terms, covenants and provisions of this assignment shall inure to the benefit of Assignee, its successors, assigns and/or other legal representatives, and shall be binding upon Assigner, its successors, assigns and/or other legal representatives.

instrument this day of November, 1999, at	executed and delivered this essignmen California, USA.
1	RAYCER, INC.
•	· · · · · · · · · · · · · · · · · · ·
ſ	David Shrigley, President and CEO

IN WITNESS WHEREOF. Assignee agrees to and accepts this assignment instrument this 7 day of November, 1999, at Cuptatine, California, USA.

APPLE COMPUTER, INC.

Name \_ Fata Arroteso

Title GESLUTIUE VILL PRESIDENT

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PATENT REEL: 017520 FRAME: 0955

State of California )
County of Santa Clara)
On November 1999, before me,, Notary Public of the State of California, personally appeared David Shrigley, personally known to me (or proved to me on the basis of satisfactory evidence) to be the person whose name is subscribed to the within instrument and acknowledged to me that he executed the same in his authorized capacity, and that by his signature on the instrument the person, or the entity upon behalf of which the person acted, executed the instrument.
WITNESS my hand and official seal.
Signature(Seal)
State of California  County of Santa Clara)  On November 1999, before me, Mancia M. Stubenderff Notary Public of the State of California, personally appeared Fred D. Anderson personally known to me (or proved-to-me on the basis of satisfactory-evidence) to be the person whose name is subscribed to the within instrument and acknowledged to me that he executed the same in his authorized capacity, and that by his signature on the instrument the person, or the entity upon behalf of which the person acted, executed the instrument.
WITNESS my hand and official seal.  Signature Manaca M. Africandoff (Seal)
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Fiehr File No.	US Serial No. Filing Date	Title
P-66394	8/8/99 60/147,909	Phong Pixel Coloring Structure and Method in a Graphics Processor
P-66395	\$/8/99 60/147,910	Structure and Method Phong Pixel Lighting
P-66399	8/8/99 60/147,908	Apparatus and Method for Fragment Operations in a 3D- Graphics Pipeline
P-66360	8/20/98 60/097,336	Graphics Processor With Deferred Shading

# III. PENDING U.S. AND PCT (INTERNATIONAL) PATENT APPLICATIONS

Flehr File No.	US Serial No. PCT Serial No. Filing Date	Title
A-66397 FP-66397	09/213,990 12/17/98 US99/19036 8/20/99	How To Do Tangent Space Lighting In A Deferred Shading Architecture
A-663600 FP-66360	9/378,637 8/20/99 US99/19254 8/20/99	Graphics Processor with Deferred Shading
A-66360- FP-66360-1	109/378,299 8/20/99 US99/19191 8/20/99	Deferred Shading Graphics Pipeline Processor
A-66364 FP-66364	09/377,503 8/20/99 US99/18971 8/20/99	Deferred Shading Graphics Pipeline Processor Having Advanced Features
A-66373 FP-66373	09/379,144 8/20/99 US99/19241 8/20/99	Apparatus and Method for Geometry Operations in a 3D-Graphics Pipeline
A-66378 FP-66378	09/378,439 8/20/99 US99/19200 8/20/99	Graphics Processor with Pipeline State Storage and Retrieval
A-66380 FP-66380	09/378,633 8/20/99 US99/19263 8/20/99	System, Apparatus and Method for Spatially Sorting Image Data in a Three-Dimensional Graphics Pipeline

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PATENT REEL: 017520 FRAME: 0957

Flehr File No.	US Serial No. PCT Serial No. Filing Date	Title
A-66382 FP-66382	09/378,598 8/20/99 US99/19240 8/20/99	Apparatus and Method for Performing Setup Operations in a 3-D Graphics Pipeline Using Unified Primitive Descriptors
A-66386 FP-66386	09/378,391 8/20/99 US99/19190 8/20/99	Method and Apparatus for Performing Conservative Hidden Surface Removal in a Graphics Processor with Deferred Shading
A-66398 FP-66398	09/378,408 8/20/99 US99/19192 8/20/99	Method and Apparatus for Generating Texture
A-66399 FP-66399	09/372,137 8/20/99 U\$99/19363 8/20/99	Apparatus and Method for Fragment Operations in a 3D- Graphics Pipeline
A-62375-2	3/8/99 09/264,302	Method and Apparatus for Span and Subspan Sorting Rendering System
RI-59034 (relates of 5,596,686)	09/234,932 1/21/99	Method and Apparatus for Simultaneous Parallel Query Graphics Rendering Z-Coordinate Buffer

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# IV. FOREIGN PATENT APPLICATIONS

Fichr File No.	Serial No. Country Corresponds To	Title
FE-62375-EP	No. 96925513.2 Europe PCT/US96/12301 7/26/96	Method and Apparatus for Span Sorting Rendering System
FE-62375-1-EP	No. 96927269.9 Europe PCT/US96/12390 7/26/96	Method and Apparatus for Span and Subspan Sorting Rendering System
FA-62375-1-JP	9-507824 Japan PCT/US96/12390 7/26/96	Method and Apparatus for Span and Subspan Sorting Rendering System

# V. UNFILED PATENT APPLICATIONS AND INVENTION DISCLOSURES

Flehr File No.	Title
A-67331	System and Method for Write Combining

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PATENT REEL: 017520 FRAME: 0958

**RECORDED: 04/21/2006**