

SURVEY OF UNITED STATES SOFTWARE PATENTS 1993

By

**Proprietary Rights Committee
Computer Law Section
State Bar of Michigan**

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I. BACKGROUND

Numerous studies indicate that the U.S. Patent and Trademark Office (Patent Office) is granting an increasing number of patents covering various software-related inventions.¹

While there really is no specific category of "software patents", Classes 364 and 395 are generally acknowledged to be the classes in which the Patent Office classifies most software-related patents.² Class 395 was created in 1991 and replaced selected art areas from Class 364. It is difficult to determine how many of the patents granted in these classes cover software inventions because the classes include other types of inventions as well. However, the following tables illustrate the number of patents sought and issued and which were originally classified in Classes 364 and 395 from 1987 through 1993:³

¹ See, The Advisory Commission on Patent Law Reform, "A Report To The Secretary Of Commerce", August 1992; The Office of Technology Assessment, Finding A Balance: Computer Software, Intellectual Property, and the Challenge of Technological Change, May 1992 (OTA-TCT-527); and The League For Programming Freedom, "Against Software Patents", February 1991.

² MANUAL OF CLASSIFICATION, U.S. Department of Commerce, Patent and Trademark Office (Rev. Dec. 1992). Class 364 is entitled "Electrical/Computers and Data Processing Systems" and Class 395 is entitled "Information Processing System Organization".

³ E-mail message dated April 6, 1993 to the author from Gerald Goldberg, Director of Group 2300 of the Patent Office in reply to an E-mail message of April 5, 1993; and supplemented by facsimile dated March 24, 1994.

PATENTS APPLIED FOR (FISCAL YEAR OCT. 1 TO SEPT. 30)

Year	Class 364	Class 395	Total
1987	3270	N/A	3270
1988	3829	N/A	3829
1989	5444	N/A	5444
1990	6555	N/A	6555
1991	4105	2495	6600
1992	2780	4772	7552
1993	2628	6033	8661

PATENTS ISSUED

Year	Class 364	Class 395	Total
1987	1174	N/A	1174
1988	1908	N/A	1908
1989	2858	N/A	2858
1990	2591	N/A	2591
1991	1524	1123	2647
1992	1354	1476	2830
1993	1673	1940	3613

The U.S. patent laws only authorize a patent for the invention or discovery of a new and useful "process, machine, manufacture or composition of matter" and improvements

thereof. Thus, "software patents" typically are patents for processes or machines which include, to widely varying degrees, some feature, function or process embodied or implemented in a computer program.⁴ It is therefore probably better to refer to software patents as "software-related patents."

II. THE SURVEY

Objectives

The Proprietary Rights Committee of the State Bar of Michigan's Computer Law Section conducted a survey to determine the extent to which the Patent Office has granted software patents. The Committee compiled a list of software-related patents issued by the Patent Office from January 1, 1993, through December 31, 1993, and identified the "true" software patents among those listed. "True" software patents, as the Committee used the phrase, were patents which specifically disclosed and claimed software technology without directly referring to hardware, other than a conventional computer and peripheral device(s). Computer control systems (i.e., responsive to a sensor-generated signal and which, in turn, generate a control signal to control a device) were purposefully omitted.

CD-ROM Search

⁴ See, for example, Sumner and Lundberg "The Versatility of Software Patent Protection: From Subroutines To Look And Feel", THE COMPUTER LAWYER, Vol. 3, No. 6, June 1986, wherein the authors noted that the Patent Office has issued patents for a menu system for a word processing program (U.S.P.N. 4,308,582); "windowing" (U.S.P.N. 4,555,755); spell checking routines (U.S.P.N. 4,355,371); and program language translation methods (U.S.P.N. 4,374,408).

A CD-ROM database search was conducted to uncover the patents which were issued by the Patent Office from January 1, 1993, to December 31, 1993, and were either originally classified or cross-referenced into the United States Patent Class 364 or 395. The search uncovered 4,704 patents. Many were cross-referenced into multiple subclasses within Class 364 and/or Class 395. The table on page 2 of this report identifies the number of patents originally classified in Class 364 and/or Class 395.

The output of the computerized search included an Abstract and the broadest claim as selected by the patent examiner. The purpose of the Abstract is to enable the Patent Office and the public generally to quickly determine the nature and gist of the technical disclosure found in the patent document.⁵ The patented invention is defined by the patent claims (i.e., the numbered paragraphs) appearing at the end of the patent document.⁶ Members of the Committee reviewed the Abstract and the broadest claim(s) for all 4,704 patents. Each member of the Committee was assigned to review the patents issued during a particular month by the Patent Office. This review was double-checked by another member of the Committee.

The Committee determined that 1,108 of the 4,704 patents were potentially "true" software patents based upon the claim and the Abstract.

All 1,108 patents were ordered from the Patent Office and the Committee reviewed the ordered patents to assure that they were truly software patents. From the 1,108 patents, 155 were discarded, leaving 953 "true" software patents; approximately 20% of all of the patents originally classified or cross-referenced into classes 364 and 395.

⁵ 37 C.F.R. § 1.72. In fact, in 37 C.F.R. § 1.72 it is specifically stated that the Abstract shall not be used for interpreting the scope of the patent.

⁶ 35 U.S.C. § 112.

While most of the 953 "true" software patents were originally classified into classes 364 and 395, a handful of patents were originally classified in the following Patent Office classes:

CLASS NO.	SUBJECT MATTER OF CLASS
73	Measuring and Testing
84	Music
126	Stoves and Furnaces
235	Registers
273	Amusement Devices: Games
307	Electrical Transmission or Interconnection Systems
318	Electricity, Motive Power Systems
324	Electricity: Measuring and Testing
340	Communications: Electrical
341	Coded Data Generation or Conversion
345	Selective Visual Display Systems
346	Recorders
358	Pictorial Communication; Television
359	Optics, Systems (including communication) and Elements
367	Communications, Electrical: Acoustic Wave Systems and Devices
368	Horology: Time Measuring Systems or Devices
369	Dynamic Information, Storage or Retrieval
370	Multiplex Communications
371	Error Detection/Correction and Fault Detection/Recovery
375	Pulse or Digital Communications
378	X-Ray or Gamma Ray Systems or Devices
380	Cryptography

381	Electrical Audio Signal Processing Systems and Devices
434	Education and Demonstration

Also, a surprisingly large number of true software patents (26) were found in Class 382 Image Analysis.

Examples

Of the 953 true software patents, most could be grouped in one of the following 30 groups:

GROUP NO.	GROUP NAME	CORRESPONDING CLASS and SUBCLASSES	NO. OF PATENTS
1	Data Processing Control Systems, Methods or Apparatus	Class 364, Subclasses 130-194	16
2	Applications - Business Practice and Management	Class 364, Subclasses 401-408	34
3	Applications - Life Sciences	Class 364, Subclasses 413.01 thru 413.31	19
4	Applications - Linguistics	Class 364, Subclasses 419.01 thru 419.09	15
5	Applications - Word Processing	Class 364, Subclass 419	23
6	Applications - Product Manufacturing	Class 364, Subclasses 468 thru 477	15
7	Applications - Electrical/Electronic Engineering	Class 364, Subclasses 480 thru 495	25
8	Measuring, Testing or Monitoring	Class 364, Subclasses 550 thru 582	10
9	Electric Digital Calculating Computer	Class 364, Subclasses 700 thru 786	27

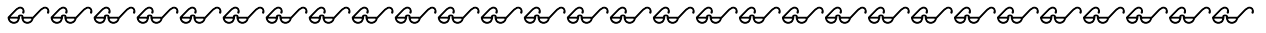
GROUP NO.	GROUP NAME	CORRESPONDING CLASS and SUBCLASSES	NO. OF PATENTS
10	Image Analysis - Applications - Image Segmentation, Pattern Recognition, Image Transformation or Prerecognition Processing, Post-Recognition Processing, and Image Sensing	Class 382, Subclasses 1 thru 69	26
11	Artificial Intelligence - Speech Signal Processing	Class 395, Subclasses 2 thru 2.87	23
12	Artificial Intelligence - Knowledge Processing - Trainable Systems	Class 395, Subclasses 20 thru 27	18
13	Artificial Intelligence - Knowledge Processing - Expert Systems	Class 395, Subclasses 50 thru 77	29
14	Data Presentation - Computer Graphics - Static Presentation Processing (e.g. for printers)	Class 395, Subclasses 101 thru 117	7
15	Data Presentation - Computer Graphics - Presentation Processing	Class 395, Subclasses 118 thru 161	67
16	Transmission of Information Among Multiple Computer Systems	Class 395, Subclass 200	15
17	Buffering Functions	Class 395, Subclass 250	4
18	I/O Processing	Class 395, Subclass 275	6
19	System Interconnections	Class 395, Subclass 325	11
20	Instruction Processing	Class 395, Subclass 375	7
21	Storage Address Formation	Class 395, Subclass 400	6
22	Storage Accessing and Control	Class 395, Subclass 425	19
23	Compatibility, Simulation, or Emulation of System Components	Class 395, Subclass 500	10
24	Reliability	Class 395, Subclass 575	8
25	Database or File Management System	Class 395, Subclass 600	52
26	Processing (Task) Management	Class 395, Subclass 650	36
27	System Utilities	Class 395, Subclass 700	36
28	Access Control Processing	Class 395, Subclass 725	10
29	Internal Control	Class 395, Subclass 775	3

30	Processing Architecture	Class 395, Subclass 800	18
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At least one example of a patent from each group of patents listed above is provided in Appendix A in the form of the first page of the patent. Groups having a larger number of patents, such as groups 15 and 25, have more examples than groups having a lesser number of patents, such as groups 17 and 18.

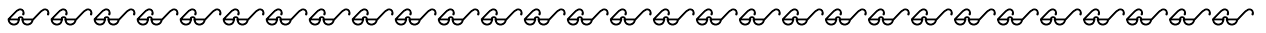
III. CONCLUSION

As evidenced by the large number of true software patents, the patentability of computer software is now firmly established, at least within the Patent Office. A wide variety of computer software has been patented as illustrated by the examples in Appendix A.



APPENDIX A

SOFTWARE PATENT EXAMPLES



C:\DRS\SURVEY.93 -- KATHY 8/02/94
8/04/94
9/08/94