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(54) Compression of image data associated with two-dimensional arrays of pixel sub-components

(57) LCD Display device (320) with increased horizontal and vertical resolution. The horizontal resolution is increased by mapping spatially different sets of one or more samples to individual pixel sub-components (302, 304, 306). The vertical resolution is increased by increasing the number of pixel sub-component density in the vertical dimension. Image data compression is performed by controlling sets of vertically adjacent pixels (C1, R1) using red, green, and blue luminous intensity values and a bias value of the pixel sub-components (302, 304, 306, 312, 314, 316).

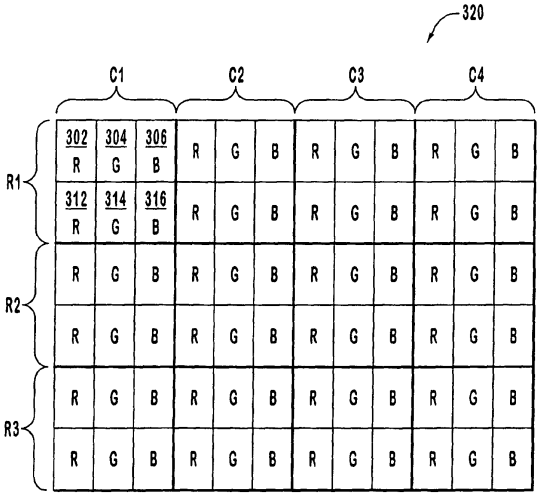

FIG. 4B

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EUROPEAN SEARCH REPORT

Application Number
EP 05 00 7975

DOCUMENTS CONSIDERED TO BE RELEVANT

Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (IPC)
Y	JP 09 051548 A (DAINIPPON PRINTING CO LTD) 18 February 1997 (1997-02-18) * figure 14 *	8,13	INV. G09G5/10 G09G3/20 G09G3/36 G09G5/24
X	EP 0 346 621 A (IBM) 20 December 1989 (1989-12-20)	1,5,7-9	
Y	* page 5, line 13 - line 54; figures 4A-C * * figure 3 * * page 6, line 50 - line 55; figures 2,7 * * page 6, line 57 - page 7, line 14; figure 8 *	8,13	
X	US 5 113 274 A (TAKAHASHI SEIKI ET AL) 12 May 1992 (1992-05-12)	10,11	
Y	* column 1, line 13 - line 17; figure 2 * * column 2, line 26 - line 35 *	1	
X,P	EP 0 899 604 A (CANON KK) 3 March 1999 (1999-03-03) * paragraph [0135]; figure 16 *	10	TECHNICAL FIELDS SEARCHED (IPC)
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A	EP 0 810 578 A (CANON KK) 3 December 1997 (1997-12-03) * column 1, line 13 - line 17; figure 2 * * column 2, line 26 - line 35 *	13	

~~The present search report has been drawn up for all claims~~

Place of search	Date of completion of the search	Examiner
Munich	26 March 2009	Gundlach, Harald

CATEGORY OF CITED DOCUMENTS

X : particularly relevant if taken alone
Y : particularly relevant if combined with another document of the same category
A : technological background
O : non-written disclosure
P : intermediate document

T : theory or principle underlying the invention
E : earlier patent document, but published on, or after the filing date
D : document cited in the application
L : document cited for other reasons

& : member of the same patent family, corresponding document

EPO FORM 1503 03.82 (P04C01)

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Application Number
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CLAIMS INCURRING FEES

The present European patent application comprised at the time of filing claims for which payment was due.

☐ Only part of the claims have been paid within the prescribed time limit. The present European search report has been drawn up for those claims for which no payment was due and for those claims for which claims fees have been paid, namely claim(s):

☐ No claims fees have been paid within the prescribed time limit. The present European search report has been drawn up for those claims for which no payment was due.

LACK OF UNITY OF INVENTION

The Search Division considers that the present European patent application does not comply with the requirements of unity of invention and relates to several inventions or groups of inventions, namely:

see sheet B

☐ All further search fees have been paid within the fixed time limit. The present European search report has been drawn up for all claims.

☐ As all searchable claims could be searched without effort justifying an additional fee, the Search Division did not invite payment of any additional fee.

☐ Only part of the further search fees have been paid within the fixed time limit. The present European search report has been drawn up for those parts of the European patent application which relate to the inventions in respect of which search fees have been paid, namely claims:

☒ None of the further search fees have been paid within the fixed time limit. The present European search report has been drawn up for those parts of the European patent application which relate to the invention first mentioned in the claims, namely claims:

1-11, 13

☐ The present supplementary European search report has been drawn up for those parts of the European patent application which relate to the invention first mentioned in the claims (Rule 164 (1) EPC).

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LACK OF UNITY OF INVENTION
SHEET B

Application Number
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The Search Division considers that the present European patent application does not comply with the requirements of unity of invention and relates to several inventions or groups of inventions, namely:

1. claims: 1-11,13

Having regard to the above mentioned prior art and from a comparison of the disclosure of this prior art and the subject-matter of claims 1 - 11, and 13, the following "special technical features" (STF) of claims 2 and 6, which is also contained by reference in claims 3 - 4 and 7 - 9, can be seen to make a contribution over this prior art method of and computer systems for displaying an image with increased resolution: "the control signal including one luminous intensity value for each of the different colours and a bias value indicating whether, and tho what extent, if any, the luminous intensity values are to be differentially applied to a particular one of the at least two pixels".
From these STF the objective problem to be solved by the 1st invention can be construed as how to increase the resolution whilst limiting the data transfer rate to the display.

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2. claim: 12

Having regard to the above mentioned prior art and from a comparison of the disclosure of this prior art and the subject-matter of claims 12, the following "special technical features" of claim 12 can be seen to make a contribution over prior art displays for displaying images with increased resolution: the pixel subcomponents have aspect ratios of approcimately 1.5.1 such that two adjacent pixels occupy a region of the display device having an aspect ratio of approximately 1:1.
From these STF the objective problem to be solved by the 2nd invention can be construed as how to increase the resolution in the vertical direction.

ANNEX TO THE EUROPEAN SEARCH REPORT ON EUROPEAN PATENT APPLICATION NO. EP 05 00 7975

This annex lists the patent family members relating to the patent documents cited in the above-mentioned European search report. The members are as contained in the European Patent Office EDP file on
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26-03-2009

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For more details about this annex : see Official Journal of the European Patent Office, No. 12/82