

PIXELWORKS, INC
Form 10-K
March 09, 2011
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UNITED STATES
SECURITIES AND EXCHANGE COMMISSION
WASHINGTON, D.C. 20549

FORM 10-K

x ANNUAL REPORT PURSUANT TO SECTION 13 or 15(d) OF THE SECURITIES EXCHANGE ACT OF 1934

For the fiscal year ended December 31, 2010

or

.. TRANSITION REPORT PURSUANT TO SECTION 13 or 15(d) OF THE SECURITIES EXCHANGE ACT OF 1934

For the transition period from _____ to _____

Commission File Number: 000-30269

PIXELWORKS, INC.

(Exact name of registrant as specified in its charter)

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Oregon
(State or other jurisdiction of
incorporation or organization)
224 Airport Parkway, Suite 400, San Jose, CA
(Address of principal executive offices)
408-200-9200
(Registrant's telephone number, including area code)

91-1761992
(I.R.S. Employer
Identification No.)
95110
(Zip Code)

Securities registered pursuant to Section 12(b) of the Act:

Title of each class	Name of each exchange on which registered
Common Stock	NASDAQ Global Market

Securities registered pursuant to Section 12(g) of the Act:

None

Indicate by check mark if the registrant is a well-known seasoned issuer, as defined in Rule 405 of the Securities Act. Yes ☐ No ☒

Indicate by check mark if the registrant is not required to file reports pursuant to Section 13 or 15(d) of the Act. Yes ☐ No ☒

Indicate by check mark whether the registrant (1) has filed all reports required to be filed by Section 13 or Section 15(d) of the Securities Exchange Act of 1934 during the preceding 12 months (or for such shorter period that the registrant was required to file such reports), and (2) has been subject to such filing requirements for the past 90 days. Yes ☒ No ☐

Indicate by check mark whether the registrant has submitted electronically and posted on its corporate Web site, if any, every Interactive Data File required to be submitted and posted pursuant to Rule 405 of Regulation S-T (§ 232.405 of this chapter) during the preceding 12 months (or for such shorter period that the registrant was required to submit and post such files). Yes ☐ No ☒

Indicate by check mark if disclosure of delinquent filers pursuant to Item 405 of Regulation S-K (§229.405 of this chapter) is not contained herein, and will not be contained, to the best of the registrant's knowledge, in definitive proxy or information statements incorporated by reference in Part III of this Form 10-K or any amendment to this Form 10-K. ☐

Indicate by check mark whether the registrant is a large accelerated filer, an accelerated filer, a non-accelerated filer or a smaller reporting company. See definitions of "large accelerated filer," "accelerated filer," and "smaller reporting company" in Rule 12b-2 of the Exchange Act.

Large accelerated filer <input type="checkbox"/>	Accelerated filer <input type="checkbox"/>
Non-accelerated filer <input type="checkbox"/>	Smaller reporting company <input checked="" type="checkbox"/>

Indicate by check mark whether the registrant is a shell company (as defined in Rule 12b-2 of the Act). Yes ☐ No ☒

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Aggregate market value of voting Common Stock held by non-affiliates of the registrant at June 30, 2010: \$32,875,160. For purposes of this calculation, executive officers and directors are considered affiliates.

Number of shares of Common Stock outstanding as of February 28, 2011: 13,630,558.

Documents Incorporated by Reference

Part III incorporates information by reference to the registrant's definitive proxy statement, to be filed with the Securities and Exchange Commission within 120 days after the close of the fiscal year ended December 31, 2010.

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FORM 10-K

FOR THE YEAR ENDED DECEMBER 31, 2010

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Forward-looking Statements

This Annual Report on Form 10-K, including Management's Discussion and Analysis of Financial Condition and Results of Operation in Part II, Item 7, contains forward-looking statements that are based on current expectations, estimates, beliefs, assumptions and projections about our business. Words such as expects, anticipates, intends, plans, believes, seeks, estimates and variations of such words and similar expressions are intended to identify such forward-looking statements. These statements are not guarantees of future performance and involve numerous risks, uncertainties and assumptions that are difficult to predict. Actual results could vary materially from those contained in forward looking statements due to many factors, including, without limitation: our ability to deliver new products in a timely fashion; our new product yield rates; changes in estimated product costs; product mix; supply of products from third-party foundries; failure or difficulty in achieving design wins; timely customer transition to new product designs; competitive factors, such as rival chip architectures, introduction or traction by competing designs, or pricing pressures; the success of our products in expanded markets; current global economic challenges; levels of inventory at distributors and customers; changes in the digital display and projection markets; changes in customer ordering patterns or lead times; seasonality in the consumer electronics market; our efforts to achieve profitability from operations; insufficient, excess or obsolete inventory and variations in inventory valuation; litigation related to our intellectual property rights; our lower cash position as a result of our prior and any future debt repurchases, and other risks identified in the risk factors contained in Part I, Item 1A of this Annual Report on Form 10-K. These forward-looking statements speak only as of the date on which they are made, and we do not undertake any obligation to update any forward-looking statement to reflect events or circumstances after the date of this Annual Report on Form 10-K. If we do update or correct one or more forward-looking statements, you should not conclude that we will make additional updates or corrections with respect thereto or with respect to other forward-looking statements. Except where the context otherwise requires, in this Annual Report on Form 10-K, the terms Pixelworks, the Company, we, us and our mean Pixelworks, Inc., an Oregon corporation, and its wholly-owned subsidiaries.

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PART I

Item 1. Business. Overview

We are an innovative designer, developer and marketer of video and pixel processing semiconductors and software for high-end digital video applications and hold 138 patents related to the visual display of digital image data. Our solutions enable manufacturers of digital display and projection devices, such as large-screen flat panel televisions and digital front projectors, to manufacture their products with a consistently high level of video quality, regardless of the content's source or format. Our core technology leverages unique proprietary techniques for intelligently processing video signals from a variety of sources to ensure that all resulting images are optimized. Additionally, our products help our customers reduce costs and differentiate their display and projection devices, an important factor in industries that experience rapid innovation. Pixelworks was founded in 1997 and is incorporated under the laws of the state of Oregon.

Pixelworks' flexible design architecture enables our technology to produce outstanding image quality in our customers' products with a range of single-purpose integrated circuits (ICs), to system-on-chip (SoC) ICs that integrate microprocessor, memory and image processing functions. Additionally, we provide full solutions, including a software development environment and operating system, which enable our customers to more quickly develop and customize their display products, thus reducing their time to market and allowing them to incorporate differentiated features and functions.

Our primary target markets are liquid crystal display (LCD) large-screen televisions and 3LCD and digital light processing (DLP) digital front projectors, however we also target other segments within the flat panel display market, including digital signage.

We have adopted a product strategy that leverages our core competencies in video processing to address the evolving needs of the advanced flat panel display, digital projection and other markets that require superior image quality. We focus our product investments on developing video enhancement solutions for these markets, with particular focus on adding increased performance and functionality. Additionally, we look for ways to leverage our research and development investment into products that address other high-value markets where our innovative proprietary technology provides differentiation for us and our customers. We continually seek to expand our technology portfolio through internal development, co-development with business partners and evaluation of acquisition opportunities.

Digital Video Technology Trends

Over the course of the last several years, video technology has moved rapidly from analog technology, which utilizes waveform signals, to a new generation of digital technologies that utilize a grid of thousands of tiny picture elements, or pixels. Consequently, digital display devices have rapidly evolved to incorporate higher pixel counts and faster rates of screen refresh, both of which contribute to a sharper, clearer image. At the same time, digital display devices have increased in size and begun to incorporate newer video capabilities such as high-definition and, most recently, 3D. Accordingly, the video image processors that drive newer displays have had to increase their capabilities as well to keep pace with the ever growing needs for greater resolution, size and speed that digital technology affords.

The number and variety of digital video applications is increasing rapidly, and video is expanding to play a pervasive role across many aspects of business and personal lifestyle. Digital video content is being delivered from an increasing array of sources that vary dramatically in quality on Blu-ray DVDs, via cable and satellite, across the Internet and on cell phones and smart devices. The sources and quality of video content range from very high-resolution programming produced by network or movie studios to very poor quality clips created by individuals.

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Regardless of the source or quality, increasingly, consumers are sharing video with others and viewing video on a growing array of form factors from handheld devices to large screen displays. At the same time, the consumer expectation for ever higher quality video continues to rise, driven by higher display resolutions on larger TVs. These trends place new demands on video signal and pixel processing technology to enable display and projection devices to provide the best viewing experience possible across multiple display formats. For example, content created for one type of display device, such as a PC, must be scaled up or down to play back clearly on a different device, such as a television. On larger, higher-resolution TV screens, image quality deteriorates significantly, and must be compensated for with video processing technology that restores or even creates higher video quality.

The latest generations of advanced digital display devices enhance image performance in a number of ways, chief among them being increasing the size of the display, increasing the display resolution and increasing the number of times per second the image is refreshed. Premium displays currently feature full HD resolutions of 1920 columns by 1080 rows of pixels progressively scanned (1080p), display frame rates of 240Hz or more, are 3D ready and measure from 32 inches to 70 inches or more diagonally. In addition to the need for image enhancement, various applications, such as digital signage, Internet- enabled televisions and connected classroom environments, are creating a need for new networking capabilities that can enable the sharing of video across display devices and display environments.

Large-Screen Flat Panel Display Market

The market for flat panel displays has risen rapidly over the past decade and is projected to be worth more than \$100 billion in sales annually by 2012, according to the industry research firm DisplaySearch. Key segments of growth within the flat panel display industry are consumer applications, such as PC monitors and digital televisions. Digital TVs in particular have transformed the flat panel market, as consumers have enthusiastically embraced advanced television displays that offer sharper and more lifelike images on larger and thinner screens. Increasingly, commercial applications such as public-space advertising, a form of digital signage, are also contributing to the growth of the flat panel market and the drive to improve the image and video quality of the panels themselves.

Flat panel display technologies include LCD, plasma display, rear-projection using LCDs, digital micro-mirror, and newer technologies, such as liquid crystal on silicon (LCoS) and organic light emitting diodes (OLED). Within flat panel displays, LCD and plasma have emerged as the preferred digital display technologies, with LCD leading the market in growth. The digital TV market and its high volume penetration with consumers has helped to secure the dominance of LCD technology. Shipments of LCD TVs are expected to account for around 77% of all TVs sold and grow from 190 million units in 2010 to 215 million units in 2011, according to DisplaySearch.

A large consumer market has pressured flat panel manufacturers to continually improve the quality of their displays, and as a result LCDs and other flat panel displays continue to increase in resolution and size. 1080p resolution is now the high-end standard, and larger flat panel displays are shifting rapidly from refresh rates of 50/60Hz to faster rates of 100/120Hz, 200/240Hz and even 400/480Hz. The shift to large, high-resolution flat panel displays combined with the transition to 1080p content and higher refresh rates is driving the need for high performance processor solutions to meet the enhanced video quality requirements of next generation display products. As flat panel display resolution and size increase, the challenge of judder becomes more of an issue. Judder occurs when content recorded at one rate of frames per second for film content must be converted to faster video rates, and as a result there is a jerkiness, or judder in the resulting video performance. This problem is intensified in larger displays and can be a problem regardless of the panel technology being used.

In addition to judder, LCD panels also suffer from blur in motion images as a result of the way the human brain processes the longer frame durations produced by an LCD panel. In the past, LCD panel manufacturers have tried to reduce blur by increasing the refresh rate of the panel to higher rates and inserting an extra black frame to

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reduce frame duration. But the black frame insertion method has had drawbacks one of which was to make LCD screens seem less bright. Newer motion estimation/motion compensation (MEMC) technology uses the insertion of interpolated frames based on complex mathematical algorithms to shorten the duration of the video frame and create a clearer, crisper picture. MEMC also provides de-judder processing that smoothes out the jerkiness often apparent with large screen displays.

In recent years TV manufacturers have added new design elements and performance features to differentiate their products and slow price declines. Among these are the adoption of light emitting diode (LED) backlighting, an emphasis on lower power consumption, Internet connectivity and the development of 3D-enabled TVs. All of these trends are driving the need for high performance processor solutions to meet the enhanced video quality requirements of next generation display products.

LED backlighting enables higher contrast images in more advanced TVs. Manufacturers can use either dynamic color LEDs that are positioned behind the panel and allow for local area dimming, which provides higher contrast on selected sections of the screen; or white edge-LEDs positioned around the rim of the screen, which use a special diffusion panel to spread the light evenly behind the screen. LED backlighting also serves as a critical enabler of reduced power consumption. Because of its advantages, LED backlighting is expected to surpass traditional backlights that use fluorescent tubes by 2011 and achieve 74% penetration in 2013, according to DisplaySearch. LED backlighting requires a video processing control mechanism that determines when certain LEDs are lit, and how brightly, based on the video being displayed.

The combination of LED backlighting and 200/240 Hz technologies provides an enabling platform for new feature developments in LCD TVs, particularly 3D technology, which is an area of intense interest to television manufacturers and consumers alike. DisplaySearch forecasts that worldwide 3D TV shipments will rise from 3.2 million in 2010 to more than 91 million in 2014.

Consumers desire to use their televisions to view Internet content ranging from YouTube videos to downloaded high definition movies from Netflix and other vendors is driving TV manufacturers to incorporate Internet connectivity into their products. In addition to simple connectivity, these devices must also be able to scale and enhance Internet content so as to be optimally viewed on a large flat panel display. Limitations in bandwidth, latency, noise and content resolution create significant challenges, and video processors must be able to scale poorer quality video, reduce signal noise inherent to networks and enhance image quality in order to ensure optimal video performance. DisplaySearch estimates that approximately 45 million units, or 21% of all TVs shipped in 2010 were Internet enabled, and the number of connected TVs is expected to grow to more than 122 million in 2014.

Increasing screen sizes, higher frame rates, the desire to view Internet content on high-resolution displays, LED backlighting, 3D and other trends all present video performance challenges that must be addressed and are exacerbated with each new cycle of additional features. To differentiate their products, advanced flat panel manufacturers must implement video processing technologies that address these video performance issues as rapidly, as fully and as cost effectively as possible. Additionally, the interplay of performance, features, cost and power consumption is a key area of differentiation for digital television manufacturers. Most features and performance improvements carry cost premiums and increased power consumption, but intelligent design and utilization of appropriate video processing technologies can enable simultaneous improvements.

Digital Projection Market

Increasingly affordable price points are driving continued adoption of digital projectors in business and education, as well as among consumers. Technology improvements are helping reduce the size and weight of projection devices and increasing their performance. Projector models range from larger units designed to be permanently installed in a conference hall or other venue, to ultra portable devices weighing less than two pounds for maximum portability. According to Pacific Media Associates (PMA), the worldwide front projector market grew to a total of 8.49 million units sold in 2010 from 6.33 million units in 2009.

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Currently, the largest segment of the installed front projector market consists of business users who employ multimedia projectors to display both still and video presentation materials from PCs or other sources. Requirements for the business market include portability, compatibility with multiple software and hardware applications and features that ensure simple operation. In educational environments from elementary schools to university campuses, projectors help teachers integrate media-rich instruction into classrooms. Growth in overall projector sales is expected to come both from the business sector and the education market. Tiny, battery powered pico projectors embedded in a cell phone or PC, or available as independent devices weighing less than a pound, also are beginning to take hold in the consumer and business markets, fueled by their capability to display video content at high resolutions.

Consistent with the trends of other consumer products, digital projectors are increasingly incorporating networking capabilities that enable the sharing of video and other content among multiple devices. This in turn is enabling new use models for digital projection in both the education and business environments. For example, one teacher can present the same material simultaneously in multiple classrooms, and students in different classrooms can display and discuss their work. Such connectivity allows instant access to content and sharing of content, which promotes interaction and collaboration among dispersed groups. In the business setting, this connectivity enables teleconferencing and the seamless sharing of content for more effective meetings.

Additional Markets

In addition to the large-screen flat panel display and digital projection markets, other sectors are also taking advantage of the trend towards higher performance and connectivity in digital video technology. Some of the applications expected to grow as a result of enhanced video quality include digital signage, video conferencing and specialty monitors.

Worldwide, the emerging economies of Brazil, Russia, India and China, commonly referred to collectively as BRIC, are expected to be a leading driver of demand for information technology of all kinds, including projectors for business, education and the consumer sectors.

Our Core Technologies and Products

We have developed a portfolio of advanced video algorithms and intellectual property (IP) to address a broad range of challenges in digital video. Our technologies can dramatically improve video quality and are increasingly important as screen size and resulting quality issues increase. Our products are designed with a flexible architecture that allows us to combine algorithms and functional blocks of digital and mixed signal circuitry. Accordingly, our technologies can be implemented across multiple products and in powerful combinations within single products. The majority of our products include one or more technologies to provide high-quality video solutions to our customers.

Some of our proprietary core technologies include:

MEMC (motion estimation/motion compensation). Our proprietary MEMC technology significantly improves the performance and viewing experience of large advanced LCD panels by solving problems such as motion blur and judder. It also supports significant digital TV trends such as 3D, LED backlight local dimming (both edge-lit and full array) and 240Hz and higher frame rates. Additionally, our MEMC technology improves video performance in non-TV applications such as video conferencing, 3D gaming and projection.

Networking. Our networking technology enables the same video stream to be networked across multiple displays, for applications such as connected video projection and digital signage.

Digital keystone correction. Our technology provides enhanced keystone and image correction performance for digital projection systems, particularly for short throw projectors which must project clearly at severe angles due to space limitations.

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Our product development strategy is to leverage our expertise in video processing to address the evolving needs of the advanced flat panel display, digital projection and other markets that require superior image quality. We plan to continue to focus our development resources to maintain our market lead and provide leading edge solutions for the advanced LCD and DLP in the digital projection market and to enhance our video processing solutions for advanced flat panel displays and other markets. Additionally, we look for ways to leverage our research and development investment into products that address high-value markets where our innovative proprietary technology provides differentiation for us and our customers. We deliver our technology in a variety of offerings, which take the form of single-purpose chips, highly integrated SoCs that incorporate specialized software, and full solutions incorporating software and other tools.

Our primary product categories include the following:

ImageProcessor ICs. Our ImageProcessor ICs include embedded microprocessors, digital signal processing technology and software that control the operations and signal processing within high-end display systems such as projectors and high-resolution flat panels. ImageProcessor ICs were our first product offerings and continue to comprise the majority of our business. We have continued to refine the architectures for optimal performance, manufacturing our products on process technologies that align with our customers requirements. Additionally, we provide a software development environment and operating system that enables our customers to more quickly develop and customize the look and feel of their products.

Video Co-Processor ICs. Products in this category work in conjunction with an image processor to post-process video signals in order to enhance the performance or feature set of the overall video solution (for example, by significantly reducing judder and motion blur). Our video co-processor ICs can be used with our ImageProcessor ICs or with image processing solutions from other manufacturers, and in most cases can be incorporated by a display manufacturer without assistance from the supplier of the base image processor. This flexibility enables manufacturers to augment their existing or new designs to enhance their video display products.

Networked Display ICs. Our Networked Display ICs allow the same video stream to be networked across multiple displays, for example to connect projectors in different classrooms or to enable networked streaming of video in digital signage applications. Our Networked Display IC combines video sharing capabilities with video image processing, wireless connectivity and Internet connection to ensure high quality, multi-source video output and enhanced value to our projection display customers.

Customers, Sales and Marketing

The key focus of our global sales and marketing strategy is to achieve design wins with industry leading branded manufacturers in targeted markets and to continue building strong customer relationships. Once a design win has been achieved, sales and marketing efforts are focused on building long-term mutually beneficial business relationships with our customers by providing superior technology and reducing their costs, which complements our customers product development objectives and meets their expectations for price-performance and time to market. Marketing efforts are focused on building market-leading brand awareness and preference for our solutions.

We utilize direct sales and marketing resources in the U.S., China, Taiwan, Japan and Korea as well as indirect resources in several regions. In addition to sales and marketing representatives, we have field application engineers who provide technical expertise and assistance to manufacturing customers on final product development.

Our global distribution channel is multi-tiered and involves both direct and indirect distribution channels, as described below:

Distributors. Distributors are resellers in local markets who provide engineering support and stock our semiconductors in direct relation to specific manufacturing customer orders. Our distributors

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often have valuable and established relationships with our end customers, and in certain countries it is customary to sell to distributors. While distributor payment to us is not dependent upon the distributor's ability to resell the product or to collect from the end customer, our distributors may provide longer payment terms to end customers than those we would offer. Sales to distributors accounted for 61%, 51% and 53% of revenue in 2010, 2009 and 2008, respectively.

Our largest distributor, Tokyo Electron Device Ltd. (TED), is located in Japan. TED represented 44%, 35% and 32% of revenue in 2010, 2009 and 2008, respectively, and accounted for 45% and 22% of accounts receivable at December 31, 2010 and 2009, respectively. No other distributor accounted for more than 10% of revenue in 2010, 2009 and 2008.

We also have distributor relationships in Taiwan, China, Korea, Europe, Southeast Asia and the U.S.

Direct Relationships. We have established direct relationships with companies that manufacture high-end display systems. Some of our direct relationships are supported by commission-based manufacturers' representatives, who are independent sales agents that represent us in local markets and provide engineering support but do not carry inventory. Revenue through direct relationships accounted for 39%, 49% and 47% of total revenue in 2010, 2009 or 2008, respectively.

We have direct relationships with companies falling into the following three classifications:

Integrators. Integrators are original equipment manufacturers who build display devices based on specifications provided by branded suppliers.

Branded Manufacturers. Branded manufacturers are globally recognized manufacturers who develop display device specifications, and manufacture, market and distribute display devices either directly or through resellers to end-users.

Branded Suppliers. Branded suppliers are globally recognized suppliers who develop display device specifications and then source them from integrators, typically in Asia, and distribute them either directly or through resellers to end-users. Revenue attributable to our top five end customers represented 58%, 56% and 55% of revenue in 2010, 2009 and 2008, respectively. End customers include customers who purchase directly from us as well as customers who purchase products indirectly through distributors. Sales to Seiko Epson Corporation represented more than 10% of revenue in 2010, 2009, and 2008. Sales to SANYO Electric Co., Ltd. represented more than 10% of revenue in 2010 and 2009. Sales to Hitachi represented more than 10% of revenue in 2010. No other end customer accounted for more than 10% of revenue in 2010, 2009 or 2008.

Seasonality

Our business is subject to seasonality related to the markets we serve and the location of our customers. We have historically experienced higher revenue from the multimedia projector market in the third quarter of the year, and lower revenue in the first quarter of the year, as our Japanese customers reduce inventories in anticipation of their March 31 fiscal year end. Additionally, holiday demand for consumer electronics, including high-end televisions, has sometimes contributed to increased revenue in the second half of the year. Our sales in 2010, 2009 and 2008, however, did not follow our historical trends due in part to the global crisis in the credit and financial markets, continued economic uncertainty and reductions in consumer spending. As a result, it is extremely difficult for us to predict when or if historical trends are likely to resume.

Geographic Distribution of Sales

Sales outside the U.S. accounted for approximately 96%, 97% and 95% of our revenue in 2010, 2009 and 2008, respectively.

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Financial information regarding our domestic and foreign operations is presented in Note 11 of the Notes to Consolidated Financial Statements included in Item 8. Financial Statements and Supplementary Data.

Backlog

Our sales are made pursuant to customer purchase orders for delivery of standard products. The volume of product actually purchased by our customers, as well as shipment schedules, are subject to frequent revisions that reflect changes in both the customers' needs and product availability. Our entire order backlog is cancelable, with a portion subject to cancellation fees. In light of industry practice and our own experience, we do not believe that backlog as of any particular date is indicative of future results.

Competition

In general, the semiconductor industry is intensely competitive. The markets for higher performance display and projection devices, including the markets for advanced flat panel display televisions, multimedia projectors and other applications demanding high quality video, are characterized by rapid technological change, evolving industry standards, compressed product life cycles and declining average selling prices. We believe the principal competitive factors in our markets are product performance, time to market, cost, functional versatility provided by software, customer relationships and reputation, patented innovative designs, levels of product integration, compliance with industry standards and system design cost.

Our current products face competition from specialized display controller developers and in-house display controller ICs designed by our customers and potential customers. Additionally, new alternative display processing technologies and industry standards may emerge that directly compete with technologies that we offer.

We compete with specialized and diversified electronics and semiconductor companies that offer display processors or scaling components. Some of these include Broadcom Corporation, i-Chips Technologies Inc., Integrated Device Technology, Inc., MediaTek Inc., MStar Semiconductor, Inc., Realtek Semiconductor Corp., Renesas Technology Corp., Sigma Designs, Inc., Silicon Image, Inc., STMicroelectronics N.V., Sunplus Technology Co., Ltd., Trident Microsystems, Inc., Zoran Corporation and other companies. Potential and current competitors may include diversified semiconductor manufacturers and the semiconductor divisions or affiliates of some of our customers, including Intel Corporation, LG Electronics, Inc., Matsushita Electric Industrial Co., Ltd., Mitsubishi Digital Electronics America, Inc., National Semiconductor Corporation, NEC Corporation, NVIDIA Corporation, NXP Semiconductors, N.V., Samsung Electronics Co., Ltd., SANYO Electric Co., Ltd., Seiko Epson Corporation, Sharp Electronics Corporation, Sony Corporation, Texas Instruments Incorporated and Toshiba America, Inc. In addition, start-up companies may seek to compete in our markets.

Research and Development

Our internal research and development efforts are focused on the development of our solutions for the multimedia projector and high-end television markets. Our development efforts are focused on pursuing higher levels of video performance, integration and new features in order to provide our customers with solutions that enable them to introduce market leading products and help lower final systems costs for our customers.

We have invested, and expect to continue to invest, significant resources in research and development activities. Our research and development expense was \$22.8 million, \$20.1 million and \$26.5 million in 2010, 2009 and 2008, respectively.

Manufacturing

Within the semiconductor industry we are known as a fabless company, meaning that we do not manufacture the semiconductors that we design and develop, but instead contract with four third-party foundries for wafer fabrication and other manufacturers for packaging, assembly and testing of our products. The fabless approach allows us to concentrate our resources on product design and development where we believe we have greater competitive advantages.

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See **Risk Factors** in Part I, Item 1A of this Annual Report on Form 10-K for information on risks related to our manufacturing strategy and processes.

Intellectual Property

We rely on a combination of nondisclosure agreements and patent, copyright, trademark and trade secret laws to protect the algorithms, design and architecture of our technology. Currently, we hold 138 patents and have 31 patent applications pending, which relate generally to improvements in the visual display of digital image data including, but not limited to, improvements in image scaling, image correction, automatic image optimization and video signal processing for digital displays. Our U.S. and foreign patents are generally enforceable for 20 years from the date they were filed. Accordingly, our issued patents have from approximately 7 to 16 years remaining in their respective term, depending on their filing date. We believe that the remaining term of our patents is adequate relative to the expected lives of our related products.

We intend to seek patent protection for other significant technologies that we have already developed and expect to seek patent protection for future products and technologies as necessary. Patents may not be issued as a result of any pending applications and any claims allowed under issued patents may be insufficiently broad to protect our technology. Existing or future patents may be invalidated, diluted, circumvented, challenged or licensed to others. Furthermore, the laws of certain foreign countries in which our products are or may be developed, manufactured or sold, including various countries in Asia, may not protect our products or intellectual property rights to the same extent as do the laws of the United States and, thus, make the possibility of piracy of our technology and products more likely in these countries.

The semiconductor industry is characterized by vigorous protection of intellectual property rights, which have resulted in significant and often protracted and expensive litigation. We, our customers or our foundries from time to time may be notified of claims that we may be infringing patents or other intellectual property rights owned by third parties. Litigation by or against us relating to patent infringement or other intellectual property matters could result in significant expense to us and divert the efforts of our technical and management personnel, whether or not such litigation results in a determination favorable to us. In the event of an adverse result in any such litigation, we could be required to pay substantial damages, cease the manufacture, use and sale of infringing products, expend significant resources to develop non-infringing technology, discontinue the use of certain processes or obtain licenses to the infringing technology. We may not be able to settle any alleged patent infringement claim through a cross-licensing arrangement. In the event any third party made a valid claim against us, our customers or our foundries, and a license was not made available to us on terms that are acceptable to us or at all, we would be adversely affected.

See **Risk Factors** in Part I, Item 1A, and **Note 7: Commitments and Contingencies** in Part II, Item 8 of this Annual Report on Form 10-K for information on risks related to intellectual property.

Environmental Matters

Environmental laws and regulations are complex, change frequently and have tended to become more stringent over time. We have incurred, and may continue to incur, significant expenditures to comply with these laws and regulations and we may incur additional capital expenditures and asset impairments to ensure that our products and our vendors' products are in compliance with these regulations. We would be subject to significant penalties for failure to comply with these laws and regulations.

See **Risk Factors** in Part I, Item 1A of this Annual Report on Form 10-K for information on environmental risks.

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Employees

As of December 31, 2010, we had a total of 243 employees compared to 222 employees as of December 31, 2009. We consider our relations with our employees to be good.

Availability of Securities and Exchange Commission Filings

We make available through our website our annual report on Form 10-K, quarterly reports on Form 10-Q, current reports on Form 8-K and amendments to those reports free of charge as soon as reasonably practicable after we electronically file such material with the Securities and Exchange Commission. Our Internet address is www.pixelworks.com. The content on, or that can be accessed through, our website is not incorporated by reference into this filing.

Item 1A. Risk Factors.

Investing in our shares of common stock involves a high degree of risk, and investors should carefully consider the risks described below before making an investment decision. If any of the following risks occur, the market price of our shares of common stock could decline and investors could lose all or part of their investment. Additional risks that we currently believe are immaterial may also impair our business operations. In assessing these risks, investors should also refer to the other information contained or incorporated by reference in this Annual Report on Form 10-K for the year ended December 31, 2010, including our consolidated financial statements and related notes, and our other filings made from time to time with the Securities and Exchange Commission.

Company Specific Risks

Our product strategy, which is targeted at markets demanding superior video and image quality, may not lead to new design wins or significantly increased revenue in a timely manner or at all, which could materially adversely affect our results of operations and limit our ability to grow.

We have adopted a product strategy that focuses on our core competencies in pixel processing and delivering high levels of video and image quality. With this strategy, we continue to make further investments in the development of our ImageProcessor architecture for the digital projector market, with particular focus on adding increased performance and functionality. For the advanced television market, our strategy focuses on implementing our intellectual property (IP) to improve the video performance of our customers' image processors through the use of our Motion Estimation Motion Compensation (MEMC) co-processor integrated circuits (ICs). This strategy is designed to address the needs of the large-screen, high-resolution, high-quality segment of the television market. Although our product strategy is developed to take advantage of market trends, such markets may not develop or may take longer to develop than we expect. We cannot assure you that the products we are developing will adequately address the demands of our target customers, or that we will be able to produce our new products at costs that enable us to price these products competitively.

Even if our product strategy is properly targeted, we cannot assure you that the products we are developing will lead to a significant increase in revenue from new design wins. To achieve design wins, we must design and deliver cost-effective, innovative and integrated semiconductors that overcome the significant costs associated with qualifying a new supplier and which make developers reluctant to change component sources. Additionally, potential developers may be less likely or unwilling to select our products due to concerns over our financial strength. Further, design wins do not necessarily result in developers ordering large volumes of our products. Developers can choose at any time to discontinue using our products in their designs or product development efforts. A design win is not a binding commitment by a developer to purchase our products, but rather a decision by a developer to use our products in its design process. Even if our products are chosen to be incorporated into a developer's products, we may still not realize significant revenue from the developer if its products are not commercially successful or it chooses to qualify, or incorporate the products, of a second source. Additionally,

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even if our product strategy is successful at achieving design wins and increasing our revenue, we may continue to incur operating losses due to the significant research and development costs that are required to develop competitive products for the advanced television market.

We have incurred indebtedness as a result of the sale of convertible debentures. We anticipate that we must repay or refinance the debentures by May 2011. We may be unable to meet this, or other, future capital requirements.

As of December 31, 2010, \$15.8 million of our 1.75% convertible subordinated debentures (the "debentures") were outstanding. Although the debentures are not due until 2024, the holders have the right to require us to purchase all or a portion of the debentures at each of the following dates: May 15, 2011, May 15, 2014 and May 15, 2019. Since the market price of our common stock is significantly below the conversion price of the debentures, we expect the holders to exercise their put option on May 15, 2011. We may not be able to refinance the debentures at terms that are as favorable as those currently contained in the debentures, or at terms that are acceptable to us, or at all. While we believe that our existing working capital, as well as funds available under our short-term line of credit will be sufficient to meet our capital requirements for the next twelve months, we cannot assure you that we will be able to maintain sufficient cash and marketable security balances to refinance or pay off the debentures when and if the put option is exercised, or that such a repurchase would not result in cash reserves too low for us to continue our business as a going concern. We may need, or could elect to seek, additional funding through public or private equity or debt financing, which we may not be able to obtain. If we issue equity securities, our shareholders may experience additional dilution or the new equity securities may have rights, preferences or privileges senior to those of our common stock.

We may not be able to borrow funds under our credit facility or secure future financing.

In December 2010, we entered into a Loan and Security Agreement with Silicon Valley Bank to provide for a secured, working capital-based, revolving line of credit. We view this line of credit as a source of available liquidity to fund fluctuations in our working capital requirements. For example, if we experience an increase in order activity from our customers, our cash balance may decrease due to the need to purchase inventories to fulfill those orders. If this occurs, we may have to draw on this facility in order to maintain our liquidity. As of December 31, 2010, we had borrowed \$3.0 million on this line of credit.

This facility contains various conditions, covenants and representations with which we must be in compliance in order to borrow funds. We cannot assure you that we will be in compliance with these conditions, covenants and representations in the future when we may need to borrow funds under this facility. In addition, this facility expires on December 21, 2012 after which time we may need to secure new financing to continue funding fluctuations in our working capital requirements. We cannot assure you that we will be able to secure new financing, or financing on terms that are acceptable to us.

Dependence on a limited number of sole-source, third-party manufacturers for our products exposes us to shortages based on low manufacturing yield, errors in manufacturing, uncontrollable lead-times for manufacturing, capacity allocation, price increases with little notice, volatile inventory levels and delays in product delivery, which could result in delays in satisfying customer demand, increased costs and loss of revenue.

We do not own or operate a semiconductor fabrication facility and do not have the resources to manufacture our products internally. We rely on four third-party foundries to produce all of our wafers and three assembly and test vendors for completion of finished products. The wafers used in any one of our products are fabricated by only one foundry. Sole sourcing each product increases our dependence on our suppliers.

We have limited control over delivery schedules, quality assurance, manufacturing yields, potential errors in manufacturing and production costs. We do not have long-term supply contracts with our third-party manufacturers, so they are not obligated to supply us with products for any specific period of time, quantity or

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price, except as may be provided in a particular purchase order. Our suppliers can increase the prices of the products we purchase from them with little notice, which may cause us to increase the prices to our customers and harm our competitiveness. Because our requirements represent only a small portion of the total production capacity of our contract manufacturers, they could reallocate capacity to other customers even during periods of high demand for our products, as they have done in the past. We expect this may occur again in the future.

Establishing a relationship with a new contract manufacturer in the event of delays or increased prices would be costly and burdensome. The lead time to make such a change would be at least nine months, and the estimated time for us to adapt a product's design to a particular contract manufacturer's process is at least four months. Additionally, we have, and may continue to choose new foundries to manufacture our wafers which may require us to modify our design methodology flow for the process technology and intellectual property cores of the new foundry. If we have to qualify a new foundry or packaging, assembly and testing supplier for any of our products or if we are unable to obtain our products from our contract manufacturers on schedule, at costs that are acceptable to us, or at all, we could incur significant delays in shipping products, our ability to satisfy customer demand could be harmed, our revenue from the sale of products may be lost or delayed and our customer relationships and ability to obtain future design wins could be damaged.

We may fail to retain or attract the specialized technical and management personnel required to successfully operate our business.

Our success depends on the continued services of our executive officers and other key management, engineering, and sales and marketing personnel and on our ability to continue to attract, retain and motivate qualified personnel. Competition for skilled engineers and management personnel is intense within our industry, and we may not be successful in hiring and retaining qualified individuals. The loss of, or inability to hire, key personnel could limit our ability to develop new products and adapt existing products to our customers' requirements, and may result in lost sales and a diversion of management resources. We have experienced, and may continue to experience difficulty in hiring and retaining qualified engineering personnel in our Shanghai design center.

We may be unable to successfully manage any future growth, including the integration of any future acquisition or equity investment, which could disrupt our business and severely harm our financial condition.

We may determine that it is beneficial to increase our capacity to develop new and enhanced products in the future. If we fail to effectively manage internal growth, our operating expenses may increase more rapidly than our revenue, adversely affecting our financial condition and results of operations. To manage any future growth effectively in a rapidly evolving market, we must be able to maintain and improve our operational and financial systems, train and manage our employee base and attract and retain qualified personnel with relevant experience. We must also manage multiple relationships with customers, business partners, contract manufacturers, suppliers and other third parties. We could spend substantial amounts of time and money in connection with expansion efforts for which we may not realize any profit. Our systems, procedures, controls or financial resources may not be adequate to support our operations and we may not be able to grow quickly enough to exploit potential market opportunities.

In addition, we may not be able to successfully integrate the businesses, products, technologies or personnel of any entity that we might acquire in the future, and any failure to do so could disrupt our business and seriously harm our financial condition. Our operation of any acquired business would involve numerous risks, including, but not limited to:

problems combining the acquired operations, technologies or products;

unanticipated costs;

diversion of management's attention from existing operations;

adverse effects on existing business relationships with customers;

risks associated with entering markets in which we have no or limited prior experience;

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potential loss of key employees, particularly those of the acquired organizations; and

risks associated with implementing adequate internal control, management, financial and operating reporting systems. Any future acquisitions and investments could also result in any of the following negative events, among others:

issuance of stock that dilutes current shareholders' percentage ownership;

incurrence of debt;

assumption of liabilities;

amortization expenses related to acquired intangible assets;

impairment of goodwill;

large and immediate write-offs or other charges;

loss of investment; and

decreases in cash and marketable securities that could otherwise serve as working capital.

Because of our long product development process and sales cycles, we may incur substantial costs before we earn associated revenue and ultimately may not sell as many units of our products as we originally anticipated.

We develop products based on anticipated market and customer requirements and incur substantial product development expenditures, which can include the payment of large up-front, third-party license fees and royalties, prior to generating associated revenue. Our work under these projects is technically challenging and places considerable demands on our limited resources, particularly on our most senior engineering talent. Because the development of our products incorporates not only our complex and evolving technology but also our customers' specific requirements, a lengthy sales process is often required before potential customers begin the technical evaluation of our products. Our customers typically perform numerous tests and extensively evaluate our products before incorporating them into their systems. The time required for testing, evaluation and design of our products into a customer's system can take up to nine months or more. It can take an additional nine months or longer before a customer commences volume shipments of systems that incorporate our products. We cannot assure you that the time required for the testing, evaluation and design of our products by our customers would not be significantly longer than nine months.

Because of the lengthy development and sales cycles, we will experience delays between the time we incur expenditures for research and development, sales and marketing and inventory and the time we generate revenue, if any, from these expenditures. Additionally, if actual sales volumes for a particular product are substantially less than originally anticipated, we may experience large write-offs of capitalized license fees, software development tools, product masks, inventories or other capitalized or deferred product-related costs, or increased amortization of non-cancelable prepaid royalties, any of which would negatively affect our operating results. For example, our provisions for obsolete inventory and lower of cost or market write-downs were \$1.6 million, \$1.2 million and \$1.5 million in 2010, 2009 and 2008, respectively.

If we are not profitable in the future, we may be unable to continue our operations.

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We have incurred operating losses since 2004. If and when we achieve profitability depends upon a number of factors, including our ability to develop and market innovative products, accurately estimate inventory needs, contract effectively for manufacturing capacity and maintain sufficient funds to finance our activities. If we are not profitable in the future, we may be unable to continue our operations.

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A significant amount of our revenue comes from a limited number of customers and distributors, exposing us to increased credit risk and subjecting our cash flow to the risk that any of our customers or distributors could decrease or cancel its orders.

The display manufacturing market is highly concentrated and we are, and will continue to be, dependent on a limited number of customers and distributors for a substantial portion of our revenue. Sales to our top distributor represented 44%, 35% and 32% of revenue in 2010, 2009 and 2008, respectively. Revenue attributable to our top five end customers represented 58%, 56% and 55% of revenue in 2010, 2009 and 2008, respectively. As of December 31, 2010 we had two accounts that represented 10% or more of accounts receivable. As of December 31, 2009, we had three accounts that each represented 10% or more of accounts receivable. All of the orders included in our backlog are cancelable. A reduction, delay or cancellation of orders from one or more of our significant customers, or a decision by one or more of our significant customers to select products manufactured by a competitor or to use its own internally-developed semiconductors, would significantly impact our revenue. Further, the concentration of our accounts receivable with a limited number of customers increases our credit risk. The failure of these customers to pay their balances, or any customer to pay future outstanding balances, would result in an operating expense and reduce our cash flows.

Our dependence on selling to distributors and integrators increases the complexity of managing our supply chain and may result in excess inventory or inventory shortages.

Selling to distributors and original equipment manufacturers (OEMs) that build display devices based on specifications provided by branded suppliers, also referred to as integrators, reduces our ability to forecast sales accurately and increases the complexity of our business. Our sales are made on the basis of customer purchase orders rather than long-term purchase commitments. Our distributors, integrators and customers may cancel or defer purchase orders at any time but we must order wafer inventory from our contract manufacturers three to four months in advance.

The estimates we use for our advance orders from contract manufacturers are based, in part, on reports of inventory levels and production forecasts from our distributors and integrators, which act as intermediaries between us and the companies using our products. This process requires us to make numerous assumptions concerning demand and to rely on the accuracy of the reports and forecasts of our distributors and integrators, each of which may introduce error into our estimates of inventory requirements. Our failure to manage this challenge could result in excess inventory or inventory shortages that could materially impact our operating results or limit the ability of companies using our semiconductors to deliver their products. For example, we overestimated demand for certain of our products which led to significant charges for obsolete inventory in 2010, 2009 and 2008. On the other hand, if we underestimate demand, we would forego revenue opportunities, lose market share and damage our customer relationships.

International sales account for almost all of our revenue, and if we do not successfully address the risks associated with international sales, our revenue could decrease.

Sales outside the U.S. accounted for approximately 96%, 97% and 95% of revenue in 2010, 2009 and 2008, respectively. We anticipate that sales outside the U.S. will continue to account for a substantial portion of our revenue in future periods. In addition, customers who incorporate our products into their products sell a substantial portion of their products outside of the U.S., and all of our products are manufactured outside of the U.S. We are, therefore, subject to many international risks, including, but not limited to:

increased difficulties in managing international distributors and manufacturers due to varying time zones, languages and business customs;

compliance with U.S. laws affecting operations outside of the U.S., such as the Foreign Corrupt Practices Act;

foreign currency exchange fluctuations in the currencies of Japan, the People's Republic of China (PRC), Taiwan or Korea;

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reduced or limited protection of our IP, particularly in software, which is more prone to design piracy;

difficulties in collecting outstanding accounts receivable balances;

changes in tax laws and the interpretation of those laws;

difficulties regarding timing and availability of export and import licenses;

political and economic instability, particularly in the PRC, Japan, Taiwan, or Korea;

difficulties in maintaining sales representatives outside of the U.S. that are knowledgeable about our industry and products;

changes in the regulatory environment in the PRC, Japan, Taiwan and Korea that may significantly impact purchases of our products by our customers; and

outbreaks of health epidemics in the PRC or other parts of Asia.

In addition, jurisdictions in which we do business could impose more or new tariffs, quotas, trade barriers and similar trade restrictions on our sales. Moreover, economic changes, geopolitical conflicts, territory activity, political unrest, civil strife, acts of war, public corruption and other economic and political uncertainties could interrupt and negatively affect our business operations. All of these factors could result in increased costs or decreased revenues, and could materially affect our product sales, financial condition and results of operations.

The concentration of our employees, manufacturers and customers in the PRC, Japan, Korea, Taiwan and Singapore increases our risk that a natural disaster, work stoppage or economic or political instability in the region could disrupt our operations or increase .

Most of our current manufacturers and customers are located in the PRC, Japan, Korea, Taiwan or Singapore. In addition, a majority of our employees are located in this region. Disruptions from natural disasters, health epidemics and political, social and economic instability may affect the region and would have a negative impact on our results of operations. In addition, the economy of the PRC differs from the economies of many countries in respects such as structure, government involvement, level of development, growth rate, capital reinvestment, allocation of resources, self-sufficiency, rate of inflation, foreign currency flows and balance of payments position, among others. We cannot be assured that the PRC's economic policies will be consistent or effective. Our results of operations and financial position may be harmed by changes in the PRC's political, economic or social conditions.

In addition, the risk of earthquakes in the Pacific Rim region is significant due to the proximity of major earthquake fault lines in the area. Common consequences of earthquakes include power outages and disruption or impairment of production capacity. Earthquakes, fire, flooding, power outages and other natural disasters in the Pacific Rim region, or political unrest, labor strikes or work stoppages in countries where our manufacturers and customers are located, would likely result in the disruption of our manufacturers' and customers' operations. Any disruption resulting from extraordinary events could cause significant delays in shipments of our products until we are able to shift our manufacturing from the affected contractor to another third-party vendor. There can be no assurance that alternative capacity could be obtained on favorable terms, or in a timely manner, if at all.

Our operations in certain foreign and developing markets expose us to political, economic and regulatory risks.

Our growth strategy depends in part on our ability to expand our operations in developing markets, including Brazil, Russia, India, China and Southeast Asia. However, some developing markets have greater political and economic volatility and greater vulnerability to infrastructure and labor disruptions than established markets. In many foreign countries, particularly in those with developing economies, it is common to engage in business practices that are prohibited by laws and regulations applicable to us, such as the Foreign Corrupt Practices Act or similar local anti-bribery laws. These laws generally prohibit companies and their agents or intermediaries from making improper payments to government

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officials for the purpose of obtaining or retaining business. Failure to comply with these laws could subject us to civil and criminal penalties that could materially and adversely impact our financial condition and results of operations.