Bringing the 
I Can’t Believe I Ate the Whole Thing Buffet, 
Eatery, Tanning Bed and Bait Shop 
into the 21st Century

Small Office/Home Office Office System

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Executive Summary of Report

The Larson Family, of Podunk, Florida, has just opened their new family restaurant, “I Can’t Believe I Ate the Whole Thing Buffet, Eatery, Tanning Bed and Bait Shop.” Otis Larson, the father, is in charge of the day-to-day operations of the restaurant, while the three adult Larson children, Mo, Larry and Curly, staff it. Matilda Larson, Otis’ wife, is the office manager (i.e. accountant, buyer, etc) for the operation.

The Larson family has come to JCMS Computer Consultant firm to set up a Small Office/Home Office (SOHO) computer system to meet the computing needs of this new venture. The family has directed JCMS to build a robust system that will last for at least five years and will support whatever expansion or upgrades are necessary during that time. The Larsons have also indicated that they would like the system to have internet access for ease in ordering supplies, etc., along with accounting, inventory, web design and other business application software. While the family has indicated that they may use this same PC for some recreational use during off-hours, the decision has been made not to use the PC for games or other media applications that might require additional components to be built into the system or that would put too much demand on the processor and memory.

To ensure compatibility with vendors, the system will be a PC and will operate using the Windows Vista operating system. The system will be equipped with Microsoft or Microsoft compatible software. To ensure both a robustness and excellent overall performance, JCMS has set minimum requirements for the Larson system that exceeds the minimum technical requirements for the average SOHO system. This is to ensure that the Larson family can grow into their system and avoid the need to replace it before the five year time period has passed.

Because this is a risky venture and the Larsons’ entire life savings is invested in the business, the overriding issue for the Larsons is cost. The entire project’s budget cannot exceed $1200.00, not including application software, operating system costs, rebates, taxes and shipping.

When designing this system, the Larsons have indicated that besides price, reliability and customer support are the most important factors. Because no one in the Larson family is experienced in computer repair, reliable parts, backed up by manufacturer support, must be used in the system design.

Given all these factors, JCMS has configured the attached system to meet the Larsons’ needs while staying within the budget allocated.
**Setting and Anticipated Uses of the System**

The Larson family, new owners of “I Can’t Believe I Ate the Whole Thing Buffet, Eatery, Tanning Bed and Bait Shop,” has requested that JCMS Consultants design a SOHO system that will meet the needs of their growing business. Because getting the “best bang for the buck” is the overriding factor for this project, JCMS Consultants has designed an economical, yet state-of-the-art system which will serve the family well for a projected five year life span as the family has requested. This computer system will be PC based and will run the latest Windows operating system, Vista. The system will be Microsoft compatible. The goal for JCMS Consultants will be to configure a system for the Larsons which will operate quickly and efficiently and also be compatible with the software needed to manage their new business’ computer needs. The software needed for the Larsons’ system include records management and other accounting software.

Software needs include:

- **Restaurant Management**: (i.e. Inventory Control, Ordering, Vendor information, and On-Line ordering which will also require an Internet Service Provider and network communication software).

- **Records Management**: (i.e. Personnel Records, Tax and General Accounting needs.)

Based on the criteria as outline above, JCMS Consultants will focus configuration decisions and the fiscal resources on the major working components of the system (i.e. the hard drive, memory and external/mobile storage devices).
**System Components and**

**Detailed System Configuration**

* NOTE: Refer to the last page of this report for a table of detailed system configuration information *

**Motherboard**

The Larsons need a system that can be expanded and upgraded as their needs change, so the team chose the Intel Desktop Board DG965WH - ATX - iG965 for the motherboard. It will support Vista, and the integrated network controller will support Internet access. It provides seven expansion slots for future additions. The board has four memory slots that will support up to 8GB of memory and is capable of supporting several types of processors. Because the Larsons do not require support for audio and video editing, the team decided, after researching components individually, that the integrated graphics and sound controllers would be suitable for the cost savings offered. It also provides several USB ports and an assortment of input/output ports.

This board is available at buy.com (BOXDG965WHMKR) for $130 with a standard three-year limited warranty ([http://www.buy.com/retail/product.asp?sku=202760668&SearchEngine=](http://www.buy.com/retail/product.asp?sku=202760668&SearchEngine=)).

**Processor and Heatsink**

The processor, an Intel Pentium D Processor 940, was chosen based on its compatibility with the motherboard and its high performance. It has a LGA 775 socket and a bus speed of 800 MHz. It is a dual core processor with a clock speed of 3.2 GHz. It also comes bundled with a fan and heatsink.

This processor is $145 at ZipZoomFly (BX80553940) and comes with a three-year warranty ([http://www.zipzoomfly.com/jsp/ProductDetail.jsp?ProductCode=80852&prodlist=cnet](http://www.zipzoomfly.com/jsp/ProductDetail.jsp?ProductCode=80852&prodlist=cnet)).

**Case and Power Supply**

The team chose the In Win S564T2 Mid-Tower ATX Case, which is the appropriate form factor to fit the motherboard. A rough calculation of the
wattage required by all system components indicated that the 350 watts provided by the power supply should be sufficient, and the case has a standard built-in fan. There is space for seven expansion slots, and it has three external 5.25” bays to support the DVD burner. It also has two external 3.5’ bays and two internal 3.5” bays for additional drives if needed.

This case is available from Amazon.com (IW-S564T2.J350BL) for $70 (http://www.amazon.com/dp/B000FI9VMK/ref=nosim/?tag=mysimon-ce00-20&creative=380333&creativeASIN=B000FI9VMK&linkCode=asn). CNET Shopper provides better information on the specifications (http://shopper.cnet.com/cases/in-win-s564t2-mid/4014-3030_9-31853379.html?tag=srch_1_1).

**Memory**

While for small business systems 512 MB of RAM is usually suggested, the high memory requirements of Windows Vista led the systems team to set aside extra money for more RAM. As a result, the Larsons’ system will include a Crucial 2GB kit (1GB x 2), 240-pin DIMM, DDR2 PC2-6400 memory module (Model #: CT2KIT12864AA80E). Reasonably priced by the manufacturer at $239.99, this kit matches the motherboard specs for RAM including the top speed of 800MHz. As required, the kit will provide a matched pair of evenly sized modules.

Crucial is well-known for good customer service and support, and the memory comes with a lifetime warranty. It can be purchased directly at crucial.com: http://www.crucial.com/store/partspecs.aspx?imodule=CT2KIT12864AA80E

**Hard Drive**

The Larsons’ hard drive will be a Seagate Barracuda 7200.10 (Model #: ST3250620AS). For $79.99 from Newegg.com, this 250 GB hard drive compares favorably to other, similarly sized and equipped hard drives that do not yet include the new vertical storage technology. The size is appropriate for small business use and gives the Larsons room to grow; the 7200 RPM rotational speed, 16 MB disk cache and SATA interface all ensure fast performance. Seagate’s strong reputation, five-year warranty and extensive online/telephone tech support all make this a good choice for a startup business.

The drive can be found at newegg.com: http://www.newegg.com/Product/Product.aspx?Item=N82E16822148144 and at the manufacturer web site:
Network Card

The network card is fully integrated and included on the motherboard selected. However, had this not been the case, the team decided that the Unicom 100BaseFX Multimode Fiber PCI Network Interface Card - Dual SC NIC would have been selected. This component was chosen due to its “plug and play” capability. Other factors considered were speed (up to 200 Mbps in full duplex mode), network interoperability and Windows compatibility. At a price of $79.99, this network card would have been a good choice for this system had it been required.

Sound Card

The sound card is another component that is fully integrated and included on the motherboard selected. Had this not been the case, the team decided that the Creative Labs Sound Blaster Audigy SE would have been a good choice since the scope of the system is standard audio quality. Creative Labs Sound Blaster has been an industry star for many years and provides good sound quality to fit most needs. This Sound card will provide a PC with 7.1 surround sound and give high quality audio. This card provides “24-bit/96kHz recording and playback with 100dB signal to noise ratio and digital output.” Included in this purchase would have been Creative’s “MediaSource” software which would provide a tool for creating MP3’s, music management and making custom CD’s. This card provides the standard line in/line out connectors. A steal at $34.99!

DVD Burner

In thinking ahead to the Larsons’ needs and potential growth, JCMS decided that a DVD/CD Burner combo unit should be included in the configuration. While this combo unit provides the ability to load software, it also functions as a backup tool to maintain records which are required by law and critical to the solvency of the company. After comparing several units, the DVD burner suggested for inclusion in this system is the newest addition to the Plextor line, the Plextor PX-800A DVD Super MultiDrive.

Features of the Plextor PX-800A DVD Super MultiDrive include:
  - Works with Windows Vista OS
• Fast and dependable copying (both in single layer and double layer modes)
• Double layer technology – Up to 4 hours of high-quality MPEG-2/DVD video on a 8.5 GB disc
• Software to improve low quality media, decrease recording times and prevent buffer underrun errors
• Memory - 2MB buffer memory
• Supports a variety of DVD and CD formats.
• One-year full warranty (parts and labor)
• Unlimited toll-free technical support

The price is very reasonable at $79.00.

Monitor

When reviewing various components for the Larsons’ new SOHO PC, the LCD monitor selected was the Dell LCD monitor that is available from www.tigerdirect.com. The exact name is: Dell / 17" / SXGA 1280 x 1024 / VGA / VESA / Refurbished LCD Monitor Off-Lease. This LCD located at the following link, http://www.tigerdirect.com/applications/SearchTools/item-details.asp?EdpNo=2315886&CatId=167. It is cost effective at $119.99. The TigerDirect part number is: Sku No. 2315886. The Dell part number is: RB-17DELL-LCDBLK.

This LCD was selected based on a strict, side-by-side, comparison of two LCD monitors available from TigerDirect (Dell and Acer), and while both monitors ranked favorably in most categories, the Dell LDC had the distinct advantage of being less expensive and was easier to use regarding the settings buttons. The cost factor was paramount in that the Larsons were limited to a $1,200 budget. The Dell was the less expensive of the two LCDs. Moreover, the ease of use of the Dell was superior to the Acer; the buttons on the Dell were labeled much better making it easier to configure to personal settings without confusion and worry of altering a setting without being able to change it back. These two distinct differences made the Dell our choice for the Larsons.

Printer

Since the Larsons will be using their printer for business purposes, it was decided than an all-in-one device (printer, copier, scanner, fax) would be best fit their needs. In addition, a laser printer would be better than an inkjet because of the volume of printing that would be done. Documents like payroll, supply orders, and routine copies and faxes would be made regularly and while
an inkjet printer could perform these tasks, a laser printer would have a longer life span regarding its ink capacity.

The all-in-one printer that was selected was the Samsung SCX-4521FG, TigerDirect item number S203-SCX4521FG. The printer is located at the following link:  [http://www.tigerdirect.com/applications/searchtools/item-Details.asp?EdpNo=2853408&sku=S203-SCX4521FG](http://www.tigerdirect.com/applications/searchtools/item-Details.asp?EdpNo=2853408&sku=S203-SCX4521FG). It is a printer/scanner/copier/fax device that operates at 20 pages per minute (ppm) and has an expected print capacity of up to 4,200 pages per month. This is quite good, especially if the Larsons do not print that much, they may only have to change the toner cartridge two or three times per year. Also, the copier functions include features like “clone copy” where multiple images are copied on one sheet, a feature for printouts like nametags. Front-to-back copying is also available as is collation of multiple page documents.

This printer also is sold with a 2GB flash drive, an added bonus for the Larsons. This eliminates the extra cost of a flash drive.

**Speakers**

The nature of the Larsons’ business does not impose any particular requirements on sound quality. This was therefore identified as a cost-saving category, and designers opted for the simple, AOpen MS-230 2-Piece Black Speakers (Model #: MS-230) which are available from Tigerdirect.com for $13.99.

USB power rather than traditional plugs means the headset does not need to be unplugged for the speakers to be used. The power and volume controls are also convenient, featured on the front of the speaker.


**Keyboard and Mouse**

The team was concerned about providing the Larsons with a hassle-free, ergonomic computing experience. We found the Microsoft Wireless Optical Desktop 4000 v3.0 (Model #: BX2-00004): its curved design, customizable hot keys and zoom feature are great for user comfort, and the wireless design will keep the desktop clutter-free. Only one USB port is needed for the receiver (included). This “smart receiver” will automatically warn the user when
keyboard or mouse is experiencing low batteries, or interference with the system.

At $55.23 from Provantage, this combination is very affordable. This model also uses new long-life batteries that are receiving good user reviews. 90-day no-charge support is included.

The kit can be purchased with Provantage:
http://www.provantage.com/microsoft-hardware-bx2-00004~4MCSX05R.htm
with further information available from

**Headset**

Larsons’ can be a noisy place and therefore this system needs a good set of headphones. Matilda could also use VoIP technology to communicate with suppliers. Therefore, the Altec Lansing Stereo Closed Earcup Headset (Model #: AHS502i) was chosen. It includes a noise-canceling microphone and looks light enough to wear for a long work day. This headset is compatible with input/line-out jacks on the motherboard.

The low price is appropriate: this particular component does not need to be high-performance. 2 months parts/labor warranty is sufficient. The headset is available for $26.99 from Tigerdirect.com:

**External/Mobile Storage Devices**

In the initial proposal, it was determined that the Larson family would need a flash drive for external/mobile storage. To meet the Larsons’ needs, the Transcend JetFlash 120 4GB was chosen to provide external mobile storage for this system. Features considered in this selection were 1) higher customer ratings as found on Newegg.com (all 8 reviewers rated this drive as excellent), 2) operational as a “boot” device, even with MS Vista, 3) sturdy, 4) read/write speeds much faster than advertised, 5) LED indicator of storage used at a glance, 6) security/password protection/compress files feature included, 7) lanyard for easy carrying, 8) helpful light which indicates connectivity/activity, and 9) the “key” feature in which to lock the computer.
Due to a buying incentive with the printer selected which included a flash drive with purchase, the original flash drive selected was voided from the system configuration. The $50.00 allocated for the purchase of this device was incorporated back into the system budget.

**Total System Price**

$1,154 (not including application software, operating system costs, rebates, taxes and shipping)
Operating System and Other Software

The team recommends Microsoft Vista Business as their operating system. Microsoft indicates that it will provide improved security and productivity. Because older operating systems will no longer be supported after a few more years, Vista appears to offer the best long-term solution. All software recommended is compatible with Vista. The team also recommends training for all of these software products.

Most of the communications and utility software needs should be met by the operating system. Vista comes with the Internet Explorer 7 web browser, and Mozilla Firefox 2 is an open source alternative. For email, Outlook 2007 or the open source email client, Mozilla Thunderbird 2, offer two options. Vista includes a backup/restore utility as well as anti-spyware and a firewall. Alternatively, AVG offers free anti-spyware, anti-virus, and firewall software. Finally, the recommended DVD burner comes with Easy Media Creator 9.

For general office software, Microsoft Office Professional Plus 2007 appears to meet the Larsons needs. It includes database, spreadsheet, email, desktop publishing, and word processing functions. An open source alternative is OpenOffice, which includes word processing, spreadsheet, and database functions but not desktop publishing. If additional desktop publishing functionality is needed, the Larsons may try Adobe InDesign CS3.

The Larsons also require accounting and tax preparation software, and they would like to have a website. For accounting, QuickBooks Pro 2007 appears to include required functions. The Larsons can utilize TurboTax 2006 Home & Business for federal taxes and TurboTax Business State for state taxes. Finally, for building and maintaining a website, Dreamweaver CS3 offers a great deal of functionality.
References


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ZipZoomFly.com. Transcend JetFlash 120 4GB USB 2.0 Flash Drive. 2007. [Internet]; available from
http://www.zipzoomfly.com/jsp/ProductDetail.jsp?ProductCode=83153,

ZipZoomFly.com. ULTRA FlyDrive 4GB USB Flash Drive. 2007. [Internet]; available from
http://www.zipzoomfly.com/jsp/ProductDetail.jsp?ProductCode=80201-17,
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