

Laboratory information systems

Part 1 of 11	Aspyra, LLC Cassie Silletti csilletti@aspyra.com 4360 Park Terrace Drive, Suite 100 Westlake Village, CA 91361 818-449-8671 www.aspyra.com	BtB Software Bob Freeman info@btbsoftware.com P.O. Box 845 Bayside, CA 95524 707-502-2821 www.btbsoftware.com	Cerner Jennifer Walker jennifer.walker@cerner.com 2800 N. Rockcreek Parkway Kansas City, MO 64117 816-201-2854 www.cerner.com
See captodayonline.com/productguides for an interactive version of guide			
Name of laboratory information system	CyberLAB	BtB Software LIMS	Cerner Millennium PathNet
First ever/Most recent LIS installation (based on September 2012 survey deadline)	1982/August 2012	1990/October 2010	1982/August 2012
Last major product release or update for featured LIS	September 2011	February 2008	January 2012
Total No. of contracts for sites operating LIS	50	4	635
• Hospital/Independent lab contracts in U.S.	8/4	0/0	514/15
• Clinic or group practice contracts in U.S./Public health lab contracts in U.S.	15/2	0/4	1/3
• Contracts for other U.S. sites/Contracts for foreign sites	18/3	0/0	1 (pharmaceutical manufacturer)/101
• No. of these contracts that went live between August 2011–August 2012	3	1	75
Contracts signed but LIS not yet operational (hospitals/independent labs/other sites)	2 (0/2/0)	0	75 (75/0/0)
• Total No. of contracts (live and not live) signed between Aug. 2011–Aug. 2012	2	—	66
Total No. of sites operating LIS (No. of these sites outside the U.S.)	240 (5–Jamaica, Southeast Asia)	4 (0)	635 (101–Australia, Canada, Egypt, Guam, Malaysia, Saudi Arabia, Singapore, U.K., United Arab Emirates)
Percentage of high-volume* sites installed/Low-volume** sites installed	40%/60%	25%/75%	80%/20%
Provide list of installed client sites to potential customers	yes (partial list)	yes (complete list)	yes (partial list)
No. of employees in entire company	45	4	10,072 (as of January 2012)
• No. of employees dedicated to LIS development, installation, and support	24	4	420
No. of billed tests generated annually by labs using this LIS	450,000–13,350,000 (mean, 267,900)	10,000–25,000 (mean, 17,000)	100,000–24,000,000
Range in No. of user workstations in sites operating LIS	5–120 (average, 63)	6–20 (average, 12)	not tracked
Central hardware or service type	HP, Dell, x86	Microsoft SQL, Azure	client hosted (IBM, HP), Cerner hosted
How central server failure is handled	manual intervention necessary to restore operation or system continues uninterrupted (user's option)	manual intervention necessary to restore operation or system continues uninterrupted (user's option)	manual intervention necessary to restore operation or system continues uninterrupted (user's option)
Programming language(s)	Cobol, C, Visual Basic	Visual Studio .Net	Java, Visual Basic, C++, C#, Visual C
Operating system(s)	Windows	Windows	HP-UX, AIX, VMS
Databases and tools	SQL	SQL server	Oracle
System includes full transaction logging	yes	yes	yes
Languages (other than English) offered on system	Chinese	—	British-English, French, German, Spanish
Features/modules (listed as percent of live installs or based on availability)			
• Chemistry and hematology/Bar-coded collection labels	90%/95%	installed/installed	100%/100%
• Microbiology/Public health microbiology	90%/5%	100%/100%	100%/installed
• Blood bank donor and transfusion	10%	not available	75%
• Surgical pathology/Cytology	7%/30%	not available/available but not installed	75%/75%
• Molecular pathology	2%	not available	10%
• Cytogenetics/Flow cytometry	3%/available in 2013	not available/not available	10%/50%
• HIS or EMR interface for admissions/discharge/transfer (ADT)	80%	50%	60%
• HIS or EMR interface for order entry/Results reporting	80%/90%	50%/50%	60%/60%
• HIS or EMR interface for packaging results into PDF format	2%	50%	installed
• HIS or EMR interface for packaging results into CDA1 format/CDA2 format	70%/70%	0/0	not available/not available
• Ad hoc reporting/Rules-based system	60%/95%	100%/100%	100%/100%
• Management and/or statistical reporting	90%	100%	100%
• Outreach and/or commercial laboratory	40%	100%	50%
• Compliance checking/Billing and accounts receivable	85%/installed	0/100%	installed/10%
• Materials management and inventory	not available	installed	installed
• Test partition/Remote faxing and printing	25%/95%	100%/100%	installed/installed
• HIPAA-standard transaction formats	90%	100%	100%
• Web-based remote inquiry of reports/Web access for order entry	30%/30%	available but not installed/available but not installed	<10%/<10%
• Specimen management and tracking	not available	100%	100%
• Compliance and quality assurance tools/Environmental health	80%/3%	100%/50%	100%/installed
System available via ASP or cloud-based data center	no	yes	yes
LIS can report lab data that is focus of meaningful use guidelines to public health agencies via automated electronic transmission using formats*** for:			
• Microbiology data (culture and sensitivity)	yes	yes	yes
• Other reportable diseases (blood, lead, immunology, etc.)	yes	yes	yes
• Tumor diagnosis or registry data (using NAACCR Pathology Laboratory Electronic Reporting, vol. V, version 4.0, April 2011 edition)	yes	no	yes
Other lab vendors' systems to which software has an interface	Wyndgate Technologies, NovoPath, Sunquest, Cerner, Computer Programs and Systems, others	McKesson, GE Healthcare	McKesson, Siemens, Epic, Allscripts, Meditech, others
Total laboratory automation systems to which LIS can interface	Beckman Coulter, Siemens, Ortho-Clinical Diagnostics, Labotix Automation, PVT LabSystems, Olympus America, Roche Diagnostics, Abbott Diagnostics, Becton Dickinson, others	available but not yet operational anywhere	Beckman Coulter, Siemens, Labotix Automation, PVT LabSystems, Olympus America, Roche Diagnostics, Abbott Diagnostics, Motoman, Bayer, others
LIS allows third-party updates of tables and rules	yes (HCFVA, Microsoft, Micro Focus, SQL)	no	no
LIS allows for image capture, display, reporting	yes	no	yes
Software provides indexed field in each test definition for LOINC code	yes	yes	yes
Provide LOINC dictionary for each new installation	no	no	yes
LIS supports use of SNOMED CT	yes	yes	yes
Market modules for other hospital departments (percent of installs lab only)	yes (80%)	yes (100%)	yes (50%)
No. of different types of lab instruments interfaced and operational with LIS	350 (via Aspyra interface)	0	800+ (via Cerner interface)
Percentage of LIS clients that use positive patient ID systems to identify patients and blood specimens at bedside	0	—	~25% (50% of total use Cerner PPID software/ 50% of total use third-party PPID software)
Source code/User group that meets regularly	escrow/yes (meets via Webinar only)	escrow/yes (meets via Webinar and in person)	escrow/yes (meets via Webinar and in person)
Methods by which users can tailor LIS in their own setting	ad hoc query tools, user-defined interfaces, dictionary settings, parameterization	ad hoc query tools, user-defined interfaces, dictionary settings	user programming, ad hoc query tools, user-defined interfaces, dictionary settings
Total cost for smallest LIS installation****	\$95,000 (annual maintenance fee, \$9,000)	\$26,500 (annual maintenance fee, \$7,500)	—
Total cost for largest LIS installation****	\$500,000 (annual maintenance fee, \$30,000)	\$120,000 (annual maintenance fee, \$18,000)	—
Distinguishing features (supplied by company)	<ul style="list-style-type: none"> fully integrated standing orders and batch order entry browser-based remote access for orders and results flexible, robust outreach software 	<ul style="list-style-type: none"> designed for public health laboratories; built-in statistics and charts integrated system with clinical, environmental (water, chemistry, dairy, rabies) testing, billing, and accounts receivable for all modules user-customizable worksheets and reports 	<ul style="list-style-type: none"> driving innovations to connect laboratories, customers, and devices, allowing organizations to expand their business more than 1,000 laboratories using Cerner Laboratory solutions; provide a best-of-breed LIS; focused on the laboratory since 1979 innovations for personalized medicine—publishing lifetime, discrete results; optimizing workflows using protocols; leveraging data for research and clinical trials
*generate >500,000 billed tests annually, or >200 bed hospitals, or >500 requisitions per day			
**generate <500,000 billed tests annually, or <200 bed hospitals, or <500 requisitions per day			
***HL7 2.5.1, LOINC, SNOMED, etc.			
****total cost includes hardware, software, installation, and training			
Note: a dash in lieu of an answer means company did not answer question or question is not applicable			

Laboratory information systems

Part 2 of 11	Clinical Information Systems Angela Woolley cissupport@aol.com 18805 Willamette Drive West Linn, OR 97068 800-869-0680 www.cislab.com	Clinical Software Solutions Emily Brester info@clin1.com P.O. Box 529 Queen Creek, AZ 85142 800-570-0474 ext. 5 www.clin1.net	Clinlab Allen Wilson sales@clinlabinc.com 2411 E. Graves Ave., Suite 1 Orange City, FL 32763 386-774-0030 www.clinlabinc.com
See captodayonline.com/productguides for an interactive version of guide			
Name of laboratory information system	CIS LAB	CLIN1 Laboratory†	Clinlab LIS
First ever/Most recent LIS installation (based on September 2012 survey deadline)	1981/August 2012	1987/July 2012	1987/July 2012
Last major product release or update for featured LIS	September 2012	August 2012	July 2012
Total No. of contracts for sites operating LIS	41	55	31
• Hospital/Independent lab contracts in U.S.	1/30	30/11	3/6
• Clinic or group practice contracts in U.S./Public health lab contracts in U.S.	0/1	9/0	11/2
• Contracts for other U.S. sites/Contracts for foreign sites	3 (vet, dialysis, radiology, billing)/6 (hospital, independent lab)	3/2 (training)	7/2 (hospital, clinic)
• No. of these contracts that went live between August 2011–August 2012	3	3	3
Contracts signed but LIS not yet operational (hospitals/independent labs/other sites)	4 (2/2/0)	1 (0/1/0)	4 (1/1/2)
• Total No. of contracts (live and not live) signed between Aug. 2011–Aug. 2012	4	0	4
Total No. of sites operating LIS (No. of these sites outside the U.S.)	48 (6–Saipan, Federated States of Micronesia)	60 (2–Canada)	31 (2–Saudi Arabia, Nigeria)
Percentage of high-volume* sites installed/Low-volume** sites installed	98%/2%	10%/90%	80%/20%
Provide list of installed client sites to potential customers	if requested (with existing client permission)	yes (partial list)	yes (partial list)
No. of employees in entire company	9	12	6
• No. of employees dedicated to LIS development, installation, and support	9	6	5
No. of billed tests generated annually by labs using this LIS	500,000+–1,500,000	10,000–2,000,000 (mean, 100,000)	10,000–3,000,000 (mean, 200,000)
Range in No. of user workstations in sites operating LIS	1–143 (average, 40)	1–100 (average, 10)	2–100 (average, 6)
Central hardware or service type	CTL, Intel, HP, client choice	client/server	Windows server
How central server failure is handled	manual intervention necessary to restore operation or system continues uninterrupted (user's option)	manual intervention necessary to restore operation or system continues uninterrupted (user's option)	manual intervention necessary to restore operation or system continues uninterrupted (user's option)
Programming language(s)	Cobol, Delphi, C, C++, Visual Basic	4GL	C++, others
Operating system(s)	SCO Unix, Windows	Windows	Windows XP to Windows 8
Databases and tools	Microsoft SQL, C-ISAM, RDBMS, InterBase	SQL	Sybase SQL
System includes full transaction logging	no	yes	no
Languages (other than English) offered on system	Chinese, Spanish (for reports)	—	none
Features/modules (listed as percent of live installs or based on availability)			
• Chemistry and hematology/Bar-coded collection labels	99%/98%	100%/100%	100%/100%
• Microbiology/Public health microbiology	98%/10%	100%/available but not installed	30%/5%
• Blood bank donor and transfusion	10%	available but not installed	0
• Surgical pathology/Cytology	70%/70%	available but not installed/available but not installed	0/0
• Molecular pathology	available but not installed	available but not installed	5%
• Cytogenetics/Flow cytometry	available but not installed/1%	available but not installed/available but not installed	5%/5%
• HIS or EMR interface for admissions/discharge/transfer (ADT)	100%	100%	90%
• HIS or EMR interface for order entry/Results reporting	98%/100%	90%/90%	90%/90%
• HIS or EMR interface for packaging results into PDF format	98%	90%	0
• HIS or EMR interface for packaging results into CDA1 format/CDA2 format	98%/1%	installed/installed	20%/80%
• Ad hoc reporting/Rules-based system	5%/100%	10%/100%	100%/100%
• Management and/or statistical reporting	100%	100%	100%
• Outreach and/or commercial laboratory	98%	95%	25%
• Compliance checking/Billing and accounts receivable	100%/99%	100%/95%	100%/not available
• Materials management and inventory	98%	95%	not available
• Test partition/Remote faxing and printing	100%/100%	100%/95%	100%/30%
• HIPAA-standard transaction formats	100%	100%	100%
• Web-based remote inquiry of reports/Web access for order entry	100%/100%	95%/95%	70%/70%
• Specimen management and tracking	100%	100%	30%
• Compliance and quality assurance tools/Environmental health	98%/installed	100%/installed	100%/not available
System available via ASP or cloud-based data center	yes	yes	optional
LIS can report lab data that is focus of meaningful use guidelines to public health agencies via automated electronic transmission using formats*** for:			
• Microbiology data (culture and sensitivity)	yes	yes	under development
• Other reportable diseases (blood, lead, immunology, etc.)	yes	yes	under development
• Tumor diagnosis or registry data (using NAACCR Pathology Laboratory Electronic Reporting, vol. V, version 4.0, April 2011 edition)	yes	under development	under development
Other lab vendors' systems to which software has an interface	McKesson, Healthland, Meditech, LabCorp, Quest Diagnostics, others (will interface to any vendor)	Allscripts, GE Healthcare, Healthland, NextGen, Siemens, others	Allscripts
Total laboratory automation systems to which LIS can interface	Beckman Coulter, Siemens, Ortho-Clinical Diagnostics, Labotix Automation, PVT LabSystems, Olympus America, Roche Diagnostics, Abbott Diagnostics, Sysmex, others (will interface to any vendor)	Beckman Coulter, Siemens, Ortho-Clinical Diagnostics, Labotix Automation, PVT LabSystems, Olympus America, Roche Diagnostics, Abbott Diagnostics	planned to Abbott Diagnostics
LIS allows third-party updates of tables and rules	yes	no	no
LIS allows for image capture, display, reporting	yes	yes	no
Software provides indexed field in each test definition for LOINC code	yes	yes	yes
Provide LOINC dictionary for each new installation	no	no	no
LIS supports use of SNOMED CT	yes	yes	no
Market modules for other hospital departments (percent of installs lab only)	yes (1%)	yes (60%)	no
No. of different types of lab instruments interfaced and operational with LIS	300+ (via Clinical Information Systems interface)	300+ (via Clinical Software Solutions interface)	200+ (via Clinlab interface)
Percentage of LIS clients that use positive patient ID systems to identify patients and blood specimens at bedside	100% (100% of total use Clinical Information Systems' PPID software)	100% (100% of total use Clinical Software Solutions' PPID software)	0
Source code/User group that meets regularly	no/no	no/yes (meets via Webinar and in person)	escrow/no
Methods by which users can tailor LIS in their own setting	ad hoc query tools, user-defined interfaces, report writer	ad hoc query tools, dictionary settings	ad hoc query tools, user-defined interfaces, dictionary settings, scripts, plug-ins
Total cost for smallest LIS installation****	\$12,500 (annual maintenance fee, \$6,000)	\$15,000 (annual maintenance fee, \$3,000)	\$10,000 (annual maintenance fee, \$1,500)
Total cost for largest LIS installation****	\$150,000 (annual maintenance fee, \$14,000)	\$250,000 (annual maintenance fee, \$50,000)	\$300,000 (annual maintenance fee, \$60,000)
Distinguishing features (supplied by company)	<ul style="list-style-type: none"> price, purchase, or leasing terms customization; excellent support team user friendly; high quality 	<ul style="list-style-type: none"> fully integrated with company's certified inpatient EHR and certified outpatient/ambulatory EHR products without requiring interfaces interfacing with other vendor systems (EMR/reference lab/public health) easy, cost effective custom programming available 	<ul style="list-style-type: none"> immediate support on call—no call back flexible plug-in—based HL7 engine that enables fast delivery of EMR interfaces test aliasing for EMR routing to internal and external sites
*generate >500,000 billed tests annually, or >200 bed hospitals, or >500 requisitions per day			
**generate <500,000 billed tests annually, or <200 bed hospitals, or <500 requisitions per day			
***HL7 2.5.1, LOINC, SNOMED, etc.			
****total cost includes hardware, software, installation, and training			
Note: a dash in lieu of an answer means company did not answer question or question is not applicable			
		†formerly CSSWin LIS	

Laboratory information systems

Part 3 of 11	Common Cents Systems Carl Barringer carl.barringer@apollolims.com 4701 Trousdale Drive, Suite 119 Nashville, TN 37220 800-805-9278 www.apollolims.com	Comp Pro Med Hal Petersen hpetersen@comppromed.com 3418 Mendocino Ave. Santa Rosa, CA 95403 800-276-4522 www.comppromed.com	CompuGroup Medical (formerly Antek HealthWare) Paul Taylor paul.taylor@cgm.com 228 Business Center Drive Reisterstown, MD 21136 410-517-0330 www.cgmus.com
See captodayonline.com/productguides for an interactive version of guide			
Name of laboratory information system	ApolloLIMS [†]	Polytech	LabDAQ
First ever/Most recent LIS installation (based on September 2012 survey deadline)	1987/August 2012	1981/July 2012	1991/September 2012
Last major product release or update for featured LIS	June 2012	July 2012	September 2012
Total No. of contracts for sites operating LIS	34	122	2,715
• Hospital/Independent lab contracts in U.S.	2/13	27/9	230/365
• Clinic or group practice contracts in U.S./Public health lab contracts in U.S.	1/17	36/0	2,105/5
• Contracts for other U.S. sites/Contracts for foreign sites	0/1 (public health)	2 (veterinary)/48 (national and regional hospital labs)	0/10 (clinics, reference labs)
• No. of these contracts that went live between August 2011–August 2012	5	9	122
Contracts signed but LIS not yet operational (hospitals/independent labs/other sites)	5 (0/4/1–public health, clinical, toxicology)	5 (5/0/0)	13 (0/4/9–physician office labs, clinics)
• Total No. of contracts (live and not live) signed between Aug. 2011–Aug. 2012	6	14	140
Total No. of sites operating LIS (No. of these sites outside the U.S.)	34 (1–Republic of Trinidad and Tobago)	156 (59–Canada, Eritrea, Ethiopia, Phillipines, Bhutan)	3,100 (12–Dubai, Longawal, Malawi, Virgin Islands, Tanzania)
Percentage of high-volume* sites installed/Low-volume** sites installed	40%/60%	15%/85%	not tracked/not tracked
Provide list of installed client sites to potential customers	no (confidential)	yes (clients that allow information disclosure)	yes (tailor list to match potential client's facility)
No. of employees in entire company	11	13	320
• No. of employees dedicated to LIS development, installation, and support	10	9	69
No. of billed tests generated annually by labs using this LIS	10,000–3,500,000 (mean, 700,000)	30,000–110,000 (mean, 50,000)	not tracked
Range in No. of user workstations in sites operating LIS	5–64 (average, 16)	1–38 (average, 8)	1–150+ (average, 10)
Central hardware or service type	Microsoft server	any (client supported)	Intel/AMD
How central server failure is handled	manual intervention necessary to restore operation or system continues uninterrupted (user's option)	system continues uninterrupted	manual intervention necessary to restore operation or system continues uninterrupted (user's option)
Programming language(s)	Delphi, SQL	C++	C#, .Net, Delphi
Operating system(s)	Microsoft server	Windows 98, 2000, XP, Vista, 7, NT	Windows 2008, 7, XP
Databases and tools	InterSystems Caché, Microsoft SQL	Pervasive	Oracle
System includes full transaction logging	yes	yes	yes
Languages (other than English) offered on system	none	none	none
Features/modules (listed as percent of live installs or based on availability)			
• Chemistry and hematology/Bar-coded collection labels	40%/100%	100%/100%	100%/70%
• Microbiology/Public health microbiology	70%/70%	17%/available but not installed	12%/1%
• Blood bank donor and transfusion	not available	not available	not available
• Surgical pathology/Cytology	not available/not available	not available/2%	not available/not available
• Molecular pathology	not available	not available	not available
• Cytogenetics/Flow cytometry	not available/not available	not available/2%	not available/1%
• HIS or EMR interface for admissions/discharge/transfer (ADT)	70%	68%	70%
• HIS or EMR interface for order entry/Results reporting	70%/80%	40%/48%	35%/70%
• HIS or EMR interface for packaging results into PDF format	50%	available but not installed	25%
• HIS or EMR interface for packaging results into CDA1 format/CDA2 format	50%/available but not installed	available but not installed/available but not installed	not available/not available
• Ad hoc reporting/Rules-based system	100%/100%	100%/100%	100%/100%
• Management and/or statistical reporting	100%	100%	100%
• Outreach and/or commercial laboratory	50%	24%	20%
• Compliance checking/Billing and accounts receivable	70%/70%	100%/68%	95%/not available
• Materials management and inventory	30%	not available	not available
• Test partition/Remote faxing and printing	100%/80%	100%/97%	20%/65%
• HIPAA-standard transaction formats	100%	not available	100%
• Web-based remote inquiry of reports/Web access for order entry	30%/10%	installed/27%	20%/15%
• Specimen management and tracking	100%	not available	100%
• Compliance and quality assurance tools/Environmental health	25%/30%	100%/not available	100%/not available
System available via ASP or cloud-based data center	yes	optional	no
LIS can report lab data that is focus of meaningful use guidelines to public health agencies via automated electronic transmission using formats**** for:			
• Microbiology data (culture and sensitivity)	yes	yes	yes
• Other reportable diseases (blood, lead, immunology, etc.)	yes	yes	yes
• Tumor diagnosis or registry data (using NAACCR Pathology Laboratory Electronic Reporting, vol. V, version 4.0, April 2011 edition)	under development	yes	no
Other lab vendors' systems to which software has an interface	Siemens, Allscripts, Meditech	GE Healthcare, Intermed, Siemens, eClinical-Works, Healthland, Healthmatics, Medical Manager, VitalWorks, Cerner, Allscripts, others	Cerner, NovoPath, Healthland, McKesson, Meditech, Sunquest, others
Total laboratory automation systems to which LIS can interface	Beckman Coulter, Siemens, Olympus America, Roche Diagnostics, Abbott Diagnostics	none	Beckman Coulter, Siemens, Roche Diagnostics
LIS allows third-party updates of tables and rules	yes (ODBC access with appropriate security)	yes	yes (CodeMap, Quest, LabCorp, others)
LIS allows for image capture, display, reporting	yes	yes	yes
Software provides indexed field in each test definition for LOINC code	yes	yes	yes
Provide LOINC dictionary for each new installation	yes	yes	no
LIS supports use of SNOMED CT	yes	no	yes
Market modules for other hospital departments (percent of installs lab only)	no	no	no
No. of different types of lab instruments interfaced and operational with LIS	108 (via Common Cents Systems interface)	241+ (via Comp Pro Med interface)	450+ (via CompuGroup interface)
Percentage of LIS clients that use positive patient ID systems to identify patients and blood specimens at bedside	10% (100% of total use third-party PPID software)	100% (100% of total use Comp Pro Med's PPID software)	unknown (CompuGroup can interface to HL7-compatible PPID systems)
Source code/User group that meets regularly	escrow/yes (meets via Webinar and in person)	escrow/no	escrow/yes (meets via Webinar and in person)
Methods by which users can tailor LIS in their own setting	user programming, ad hoc query tools, user-defined interfaces, dictionary settings	ad hoc query tools, user-defined interfaces, dictionary settings, customization settings, others	ad hoc query tools, Data Miner, flexible setup
Total cost for smallest LIS installation****	\$64,000 (annual maintenance fee, \$9,720)	\$15,000 (annual maintenance fee, \$1,800)	\$10,000 (annual maintenance fee, \$1,200)
Total cost for largest LIS installation****	\$660,000 (annual maintenance fee, \$112,000)	\$145,000 (annual maintenance fee, \$14,490)	\$675,000 (annual maintenance fee, \$81,000)
Distinguishing features (supplied by company)	<ul style="list-style-type: none"> efficient database structure combined with rules-based architecture provide a flexible LIS platform intuitive and flexible user interface assists with rapid training and deployment; data screens and reports can be configured to provide tight integration with lab's current practices fully integrated with all lab disciplines, more 	<ul style="list-style-type: none"> system function and reporting customization with extensive rules-based capabilities combined with easy-to-use screens over 30 years of features and customer-requested functionality built into system technically robust system designed to work on standard PCs with little to no IT support required; system design keeps network bandwidth requirements small 	<ul style="list-style-type: none"> interoperability with EHR systems, billing systems, hospital information systems, reference labs user-defined rules to assist with decision support throughout testing process; rules include testing processes, result dissemination, billing, insurance routing, more experienced, responsive technical support staff, sales personnel, system integration department
*generate >500,000 billed tests annually, or >200 bed hospitals, or >500 requisitions per day			
**generate <500,000 billed tests annually, or <200 bed hospitals, or <500 requisitions per day			
***HL7 2.5.1, LOINC, SNOMED, etc.			
****total cost includes hardware, software, installation, and training			
Note: a dash in lieu of an answer means company did not answer question or question is not applicable			
	[†] formerly M/Lab Enterprise Edition by M/Management Systems and Cirrus by Common Cents Systems		

Laboratory information systems

Part 4 of 11	Computer Programs and Systems Inc. (CPSI) Sales Department sales@cpsinet.com 6600 Wall St. Mobile, AL 36695 800-711-2774 www.cpsinet.com	CSS (Computer Service and Support) Jim O'Neill jimjr@csslis.com 2106 New Road, E6 Linwood, NJ 08221 609-653-6444 www.csslis.com	Diamond Computing Jim Campbell jim@diamondcomputing.net 2345 Fourth St. Tucker, GA 30084 800-486-5980 www.diamondcomputing.net
See captodayonline.com/productguides for an interactive version of guide			
Name of laboratory information system	CPSI System	CLS2000	LabGEM
First ever/Most recent LIS installation (based on September 2012 survey deadline)	1986/September 2012	1980/May 2012	1984/August 2012
Last major product release or update for featured LIS	September 2011	September 2012	August 2012
Total No. of contracts for sites operating LIS	454	103	85
• Hospital/Independent lab contracts in U.S.	453/1	0/75	7/56
• Clinic or group practice contracts in U.S./Public health lab contracts in U.S.	0/0	12/2	17/5
• Contracts for other U.S. sites/Contracts for foreign sites	0/0	13 (toxicology)/1	0/0
• No. of these contracts that went live between August 2011–August 2012	36	7	12
Contracts signed but LIS not yet operational (hospitals/independent labs/other sites)	17 (17/0/0)	3 (0/3/0)	7 (0/5/2)
• Total No. of contracts (live and not live) signed between Aug. 2011–Aug. 2012	23	10	—
Total No. of sites operating LIS (No. of these sites outside the U.S.)	454 (0)	103 (1–United Arab Emirates)	85 (0)
Percentage of high-volume* sites installed/Low-volume** sites installed	1%/99%	42%/58%	—
Provide list of installed client sites to potential customers	no (confidential)	no (confidential)	yes (complete list)
No. of employees in entire company	1,396	20	—
• No. of employees dedicated to LIS development, installation, and support	350	20	7
No. of billed tests generated annually by labs using this LIS	150,000–700,000 (mean, 425,000)	22,000–3,500,000 (mean, 775,000)	15,000–6,200,000 (mean, 980,000)
Range in No. of user workstations in sites operating LIS	6–500 (average, 100)	2–58 (average, 20)	1–300 (average, 16)
Central hardware or service type	IBM x3850	IBM	Windows
How central server failure is handled	manual intervention necessary to restore operation or system continues uninterrupted (user's option)	manual intervention necessary to restore operation or system continues uninterrupted (user's option)	manual intervention necessary to restore operation or system continues uninterrupted (user's option)
Programming language(s)	Visual C++	C++, Java	MSM, Caché, Visual Basic
Operating system(s)	Linux	AIX 7.1	MSM, Caché
Databases and tools	PostgreSQL	Microsoft SQL, MySQL, Lab Base	—
System includes full transaction logging	yes	yes	yes
Languages (other than English) offered on system	none	—	—
Features/modules (listed as percent of live installs or based on availability)			
• Chemistry and hematology/Bar-coded collection labels	100%/100%	100%/100%	99%/100%
• Microbiology/Public health microbiology	100%/0	86%/—	50%/50%
• Blood bank donor and transfusion	0	—	—
• Surgical pathology/Cytology	1%/1%	12%/3%	20%/25%
• Molecular pathology	0	—	—
• Cytogenetics/Flow cytometry	0/0	—	—
• HIS or EMR interface for admissions/discharge/transfer (ADT)	100%	2%	25%
• HIS or EMR interface for order entry/Results reporting	100%/100%	67%/81%	75%/75%
• HIS or EMR interface for packaging results into PDF format	100%	70%	25%
• HIS or EMR interface for packaging results into CDA1 format/CDA2 format	100%/100%	40%/—	95%/—
• Ad hoc reporting/Rules-based system	100%/100%	74%/100%	100%/100%
• Management and/or statistical reporting	100%	100%	100%
• Outreach and/or commercial laboratory	100%	42%	75%
• Compliance checking/Billing and accounts receivable	100%/100%	100%/82%	100%/75%
• Materials management and inventory	100%	—	—
• Test partition/Remote faxing and printing	100%/100%	25%/100%	100%/90%
• HIPAA-standard transaction formats	100%	100%	100%
• Web-based remote inquiry of reports/Web access for order entry	40%/15%	70%/41%	75%/75%
• Specimen management and tracking	—	100%	50%
• Compliance and quality assurance tools/Environmental health	100%/0	100%/—	—
System available via ASP or cloud-based data center	yes	optional	optional
LIS can report lab data that is focus of meaningful use guidelines to public health agencies via automated electronic transmission using formats*** for:			
• Microbiology data (culture and sensitivity)	yes	yes	yes
• Other reportable diseases (blood, lead, immunology, etc.)	yes	yes	yes
• Tumor diagnosis or registry data (using NAACCR Pathology Laboratory Electronic Reporting, vol. V, version 4.0, April 2011 edition)	yes	no	yes
Other lab vendors' systems to which software has an interface	Dawning Technologies	Aspyra, McKesson, SCC, eClinicalWorks, Medisoft, GE Healthcare, NextGen, Orchard, others	Cerner, Sunquest, McKesson, others
Total laboratory automation systems to which LIS can interface	planned to Beckman Coulter, Siemens, Ortho-Clinical Diagnostics, Labotix Automation, PVT LabSystems, Olympus America, Roche Diagnostics, Abbott Diagnostics	Beckman Coulter, Siemens, Labotix Automation, Olympus America, Roche Diagnostics, Abbott Diagnostics, Sysmex	—
LIS allows third-party updates of tables and rules	yes	yes (Ingenix)	—
LIS allows for image capture, display, reporting	yes	no	yes
Software provides indexed field in each test definition for LOINC code	yes	yes	yes
Provide LOINC dictionary for each new installation	yes	no	yes
LIS supports use of SNOMED CT	yes	no	—
Market modules for other hospital departments (percent of installs lab only)	yes (3%)	no	—
No. of different types of lab instruments interfaced and operational with LIS	382 (via Dawning Technologies interface)	300 (via CSS interface)	100+ (via Diamond Computing interface)
Percentage of LIS clients that use positive patient ID systems to identify patients and blood specimens at bedside	100% (80% of total use Computer Programs and Systems' PPID software/20% of total use third-party PPID software)	0	—
Source code/User group that meets regularly	escrow/yes (meets via Webinar and in person)	escrow/no	escrow/—
Methods by which users can tailor LIS in their own setting	ad hoc query tools, user-defined interfaces	user programming, ad hoc query tools, user-defined interfaces, dictionary settings	ad hoc query tools, dictionary settings
Total cost for smallest LIS installation****	\$345,000 (annual maintenance fee, \$55,200)	\$22,500 (annual maintenance fee, \$2,500)	\$8,000
Total cost for largest LIS installation****	\$1,143,000 (annual maintenance fee, \$96,000)	\$250,000 (annual maintenance fee, \$30,000)	\$400,000
Distinguishing features (supplied by company)	<ul style="list-style-type: none"> fully integrated EMR HIS/LIS; certified by the Certification Commission for Healthcare Information Technology build libraries and data dictionaries as a standard part of installation and conversion on-site training and support for all end users (not train the trainer) 	<ul style="list-style-type: none"> end-to-end reference lab automation, including Web-based outreach, production-oriented LIS, and full lab billing software secure Web-based physician portal; order entry, result reporting, and statistical bases reporting; HL7 EMR interface available to most electronic medical records vendors pain-management report system with drug and metabolite interactions 	<ul style="list-style-type: none"> affordable custom programming support
*generate >500,000 billed tests annually, or >200 bed hospitals, or >500 requisitions per day			
**generate <500,000 billed tests annually, or <200 bed hospitals, or <500 requisitions per day			
***HL7 2.5.1, LOINC, SNOMED, etc.			
****total cost includes hardware, software, installation, and training			
Note: a dash in lieu of an answer means company did not answer question or question is not applicable			

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Laboratory information systems

Part 5 of 11	Entre Technology Group Steve Chehansky schehansky@entretotechnology.com 11255 Camp Bowie West, Suite 101 Fort Worth, TX 76008 866-993-6873 www.genesysnsl.com	Epic Phil Lindemann phil@epic.com 1979 Milky Way Verona, WI 53593 608-271-9000 www.epic.com	HEX Laboratory Systems Susan Bollinger sbollinger@hexlab.com 1042B El Camino Real Encinitas, CA 92024 800-729-2085 www.hexlab.com
See captodayonline.com/productguides for an interactive version of guide			
Name of laboratory information system	Genesys NonStopLab	Beaker Laboratory Information System	LAB/HEX
First ever/Most recent LIS installation (based on September 2012 survey deadline)	1984/May 2012	1980/August 2012	1981/April 2012
Last major product release or update for featured LIS	August 2012	July 2012	May 2012
Total No. of contracts for sites operating LIS	95	18	145
• Hospital/Independent lab contracts in U.S.	27/3	17/0	9/73
• Clinic or group practice contracts in U.S./Public health lab contracts in U.S.	62/1	0/1	42/1
• Contracts for other U.S. sites/Contracts for foreign sites	0/2 (hospitals)	0/0	9 (veterinary/research)/11 (independent)
• No. of these contracts that went live between August 2011–August 2012	2	10	3
Contracts signed but LIS not yet operational (hospitals/independent labs/other sites)	2 (1/0/1—clinic/group practice)	19 (19/0/0)	1 (0/1/0)
• Total No. of contracts (live and not live) signed between Aug. 2011–Aug. 2012	5	12	4
Total No. of sites operating LIS (No. of these sites outside the U.S.)	110 (2—Canada, Bahamas)	172 (0)	162 (11—Mideast)
Percentage of high-volume* sites installed/Low-volume** sites installed	5%/95%	20%/80%	55%/45%
Provide list of installed client sites to potential customers	no (confidential)	yes (complete list)	no (confidential but will provide references)
No. of employees in entire company	5	6,100	14
• No. of employees dedicated to LIS development, installation, and support	3	120	14
No. of billed tests generated annually by labs using this LIS	—	—	250,000–18,000,000+ (mean, 3,500,000)
Range in No. of user workstations in sites operating LIS	1–8 (average, 2)	—	3–64 (average, 24)
Central hardware or service type	servers and workstations: Seneca, HP	HP 9000, HP Integrity, Sun Sparc, IBM p5 Series	Intel Xeon RAID
How central server failure is handled	manual intervention necessary to restore operation or system continues uninterrupted (user's option)	system continues uninterrupted	manual intervention necessary to restore operation or system continues uninterrupted (user's option)
Programming language(s)	.Net, C++	Visual Basic, Caché, C#, ASP .Net, Javascript	Thoroughbred
Operating system(s)	Windows	Unix, Windows	Linux
Databases and tools	SQL	Chronicles Extended Relational Database Management System	Thoroughbred Idol IV
System includes full transaction logging	yes	yes	yes
Languages (other than English) offered on system	French	—	—
Features/modules (listed as percent of live installs or based on availability)			
• Chemistry and hematology/Bar-coded collection labels	100%/35%	100%/100%	100%/100%
• Microbiology/Public health microbiology	3%/0	100%/100%	100%/5%
• Blood bank donor and transfusion	—	not available	—
• Surgical pathology/Cytology	0/0	40%/40%	50%/100%
• Molecular pathology	0	15%	1%
• Cytogenetics/Flow cytometry	0/0	15%/20%	1%/1%
• HIS or EMR interface for admissions/discharge/transfer (ADT)	2%	100%	50%
• HIS or EMR interface for order entry/Results reporting	18%/21%	100%/100%	75%/75%
• HIS or EMR interface for packaging results into PDF format	0	available but not installed	50%
• HIS or EMR interface for packaging results into CDA1 format/CDA2 format	not available/not available	not available/not available	75%/50%
• Ad hoc reporting/Rules-based system	100%/not available	100%/100%	100%/100%
• Management and/or statistical reporting	100%	100%	100%
• Outreach and/or commercial laboratory	3%	50%	75%
• Compliance checking/Billing and accounts receivable	installed/0	100%/90%	100%/75%
• Materials management and inventory	0	not available	2%
• Test partition/Remote faxing and printing	100%/15%	100%/100%	100%/100%
• HIPAA-standard transaction formats	not available	100%	100%
• Web-based remote inquiry of reports/Web access for order entry	available but not installed/available but not installed	100%/20%	90%/90%
• Specimen management and tracking	100%	100%	100%
• Compliance and quality assurance tools/Environmental health	100%/not available	100%/5%	100%/available but not installed
System available via ASP or cloud-based data center	no	optional	optional
LIS can report lab data that is focus of meaningful use guidelines to public health agencies via automated electronic transmission using formats*** for:			
• Microbiology data (culture and sensitivity)	yes	yes	yes
• Other reportable diseases (blood, lead, immunology, etc.)	no	yes	yes
• Tumor diagnosis or registry data (using NAACCR Pathology Laboratory Electronic Reporting, vol. V, version 4.0, April 2011 edition)	no	no	yes
Other lab vendors' systems to which software has an interface	Epic, NextGen, Allscripts, eClinicalWorks, Vitera Healthcare Solutions, Sunquest, e-MDs, Greenway, Aprima, GE Healthcare, others	Cerner, SCC Soft Computer, Sunquest, Meditech, Medware, Wyndgate Technologies	Cerner, McKesson, Siemens, GE Healthcare, Experior Healthcare Systems, WebMD, NextGen, Practice Partners, Millbrook, Allscripts, Medical Manager, 4medica, others
Total laboratory automation systems to which LIS can interface	planned for Beckman Coulter, Siemens, Olympus America, Abbott Diagnostics	Beckman Coulter, Siemens, Roche Diagnostics	Beckman Coulter, Siemens, Roche Diagnostics, Abbott Diagnostics
LIS allows third-party updates of tables and rules	no	yes (LOINC, SNOMED)	yes (CodeMap, Medicare, others)
LIS allows for image capture, display, reporting	yes	yes	yes
Software provides indexed field in each test definition for LOINC code	yes	yes	yes
Provide LOINC dictionary for each new installation	no	no	no
LIS supports use of SNOMED CT	yes	yes	yes
Market modules for other hospital departments (percent of installs lab only)	no	yes (5%)	no
No. of different types of lab instruments interfaced and operational with LIS	200 (via Entre interface)	160 (via Data Innovations or Dawning Technologies interface—customer's choice)	300+ (via HEX interface)
Percentage of LIS clients that use positive patient ID systems to identify patients and blood specimens at bedside	0	50% (100% of total use Epic's PPID software)	—
Source code/User group that meets regularly	no/no	yes/yes (meets via Webinar and in person)	escrow/no
Methods by which users can tailor LIS in their own setting	ad hoc query tools, dictionary settings, system preferences	user programming, ad hoc query tools, user-defined interfaces, dictionary settings	user programming, ad hoc query tools, user-defined interfaces, dictionary settings
Total cost for smallest LIS installation****	\$6,000 (annual maintenance fee, \$1,200)	—	\$19,000 (annual maintenance fee, \$3,000)
Total cost for largest LIS installation****	\$42,000 (annual maintenance fee, \$7,000)	—	\$125,000 (annual maintenance fee, \$15,000)
Distinguishing features (supplied by company)	<ul style="list-style-type: none"> outstanding customer support with instant remote access customized EHR/EMR interfaces to ensure clients' needs are met; client is not stuck in the middle of the limitations of the EHR/EMR interfacing capabilities meets expectations of clients 	<ul style="list-style-type: none"> seamless native data transfer from LIS to EMR without need for interfaces or translations integrated PPID specimen collection, end-to-end specimen tracking, and quality control modules customer-driven development philosophy; customers guide design and direction of product and help prioritize where to take the system 	<ul style="list-style-type: none"> high level of flexibility; easy to use; stable; reliable; expandable; can't outgrow integrated billing, no duplicate data entry; HIPAA compliant; ANSI 5010 approved; electronic billing and remittance; medical necessity and other rules-based tools quick installations; fast service; customer service 24/7 with live people; on-site hardware support; upgrades at no charge
*generate >500,000 billed tests annually, or >200 bed hospitals, or >500 requisitions per day			
**generate <500,000 billed tests annually, or <200 bed hospitals, or <500 requisitions per day			
***HL7 2.5.1, LOINC, SNOMED, etc.			
****total cost includes hardware, software, installation, and training			
Note: a dash in lieu of an answer means company did not answer question or question is not applicable			

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Laboratory information systems

Part 6 of 11	J & S Medical Associates John Bouchard sales@jsmed.com 35 Tripp St. Framingham, MA 01702 800-229-6000 www.labtrak.com	LabSoft Sales sales@labsoftweb.com 9104 Shenandoah Run Wesley Chapel, FL 33544 800-767-3279 www.labsoftweb.com	LigoLab Information Systems Suren Avunjian suren@ligolab.com 500 N. Central Ave., Suite 930 Glendale, CA 91203 800-544-6522 www.ligolab.com
See captodayonline.com/productguides for an interactive version of guide			
Name of laboratory information system	LabTrak	LabNet	LigoLab LIS
First ever/Most recent LIS installation (based on September 2012 survey deadline)	1988/July 2012	1992/2012	2006/August 2012
Last major product release or update for featured LIS	May 2012	2009	August 2012
Total No. of contracts for sites operating LIS	181	300+	32
• Hospital/Independent lab contracts in U.S.	0/175 (physician office labs)	61/49	10/16
• Clinic or group practice contracts in U.S./Public health lab contracts in U.S.	0/0	204/3	0/0
• Contracts for other U.S. sites/Contracts for foreign sites	6 (veterinary, research)/0	3 (research)/1 (hospital)	6/0
• No. of these contracts that went live between August 2011–August 2012	76	6	6
Contracts signed but LIS not yet operational (hospitals/independent labs/other sites)	0	2 (0/1/1)	—
• Total No. of contracts (live and not live) signed between Aug. 2011–Aug. 2012	45	2	—
Total No. of sites operating LIS (No. of these sites outside the U.S.)	181 (0)	300+ (1–Trinidad)	32 (0)
Percentage of high-volume* sites installed/Low-volume** sites installed	0/100%	30%/70%	35%/65%
Provide list of installed client sites to potential customers	yes (partial list)	yes (partial list)	yes (complete list)
No. of employees in entire company	14	7	24
• No. of employees dedicated to LIS development, installation, and support	5	5	17
No. of billed tests generated annually by labs using this LIS	6,000–250,000 (mean, 200,000)	1,000–100,000 (mean, 10,000)	—
Range in No. of user workstations in sites operating LIS	1–6 (average, 1)	1–77 (average, 3)	—
Central hardware or service type	PC, Dell	Dell	Intel Chipset, Apple, Linux
How central server failure is handled	manual intervention necessary to restore operation	manual intervention necessary to restore operation or system continues uninterrupted (user's option)	manual intervention necessary to restore operation or system continues uninterrupted (user's option)
Programming language(s)	Visual Basic	Delphi	Java, C++
Operating system(s)	Microsoft Windows XP, 7	Windows	Windows, Macintosh
Databases and tools	Microsoft Access	SQL	SQL, Oracle
System includes full transaction logging	no	—	yes
Languages (other than English) offered on system	—	none	—
Features/modules (listed as percent of live installs or based on availability)			
• Chemistry and hematology/Bar-coded collection labels	98%/90%	100%/100%	installed/installed
• Microbiology/Public health microbiology	not available/not available	20%/2%	installed/installed
• Blood bank donor and transfusion	not available	not available	installed
• Surgical pathology/Cytology	not available/not available	2%/not available	installed/installed
• Molecular pathology	not available	not available	installed
• Cytogenetics/Flow cytometry	not available/not available	not available/—	installed/installed
• HIS or EMR interface for admissions/discharge/transfer (ADT)	installed	90%	installed
• HIS or EMR interface for order entry/Results reporting	installed	90%/90%	installed/installed
• HIS or EMR interface for packaging results into PDF format	installed	5%	installed
• HIS or EMR interface for packaging results into CDA1 format/CDA2 format	installed/installed	not available/not available	installed/installed
• Ad hoc reporting/Rules-based system	not available/not available	30%/50%	installed/installed
• Management and/or statistical reporting	installed	100%	installed
• Outreach and/or commercial laboratory	not available	25%	installed
• Compliance checking/Billing and accounts receivable	not available/not available	70%/100%	installed/installed
• Materials management and inventory	not available	not available	installed
• Test partition/Remote faxing and printing	installed/installed	100%/50%	installed/installed
• HIPAA-standard transaction formats	installed	not available	installed
• Web-based remote inquiry of reports/Web access for order entry	not available/not available	30%/30%	installed/installed
• Specimen management and tracking	not available	60%	installed
• Compliance and quality assurance tools/Environmental health	not available/not available	not available/not available	installed/—
System available via ASP or cloud-based data center	no	no	optional
LIS can report lab data that is focus of meaningful use guidelines to public health agencies via automated electronic transmission using formats*** for:			
• Microbiology data (culture and sensitivity)	no	yes	yes
• Other reportable diseases (blood, lead, immunology, etc.)	no	yes	yes
• Tumor diagnosis or registry data (using NAACCR Pathology Laboratory Electronic Reporting, vol. V, version 4.0, April 2011 edition)	no	yes	yes
Other lab vendors' systems to which software has an interface	none	GE Healthcare, Epic, Allscripts, Cerner, Meditech, Siemens, SCC Soft Computer, others	Epic, Cerner, Sunquest, Allscripts, NextGen, GE Healthcare, eClinicalWorks, LabSoft, Siemens, others
Total laboratory automation systems to which LIS can interface	none	Beckman Coulter, Siemens, Olympus America	Beckman Coulter, Siemens, Ortho-Clinical Diagnostics, Labotix Automation, PVT LabSystems, Olympus America, Roche Diagnostics, Abbott Diagnostics
LIS allows third-party updates of tables and rules	no	yes (CodeMap)	no
LIS allows for image capture, display, reporting	no	no	yes
Software provides indexed field in each test definition for LOINC code	no	no	yes
Provide LOINC dictionary for each new installation	no	no	yes
LIS supports use of SNOMED CT	no	—	yes
Market modules for other hospital departments (percent of installs lab only)	no	no	no
No. of different types of lab instruments interfaced and operational with LIS	52 (via J & S Medical interface)	200+ (via LabSoft interface)	300+ (via LigoLab interface)
Percentage of LIS clients that use positive patient ID systems to identify patients and blood specimens at bedside	—	—	—
Source code/User group that meets regularly	no/no	no/no	escrow/yes (meets via Webinar and in person)
Methods by which users can tailor LIS in their own setting	—	—	user programming, ad hoc query tools, user-defined interfaces, dictionary settings
Total cost for smallest LIS installation****	\$3,000 (annual maintenance fee, \$595)	\$10,000 (annual maintenance fee, \$1,000)	—
Total cost for largest LIS installation****	\$25,000 (annual maintenance fee, \$3,500)	\$150,000 (annual maintenance fee, \$18,000)	—
Distinguishing features (supplied by company)	<ul style="list-style-type: none"> designed by a medical technologist specifically for the physician office laboratory; simple to use training can be accomplished in one to two hours complete, easy, affordable solution for the physician office laboratory 	<ul style="list-style-type: none"> intuitive; easy to learn and use flexible and user definable high value and reliable quality 	<ul style="list-style-type: none"> comprehensive and integrated system with document imaging, specimen tracking, clinical, molecular, AP, digital pathology, billing, more autoverification; fully automated QA/QC; touch-screen capability; rules-based system; can be configured to adapt all workflows; user-specific reports robust, scalable, and open software; highly intuitive user interface; first-class customer service
<p>*generate >500,000 billed tests annually, or >200 bed hospitals, or >500 requisitions per day **generate <500,000 billed tests annually, or <200 bed hospitals, or <500 requisitions per day ***HL7 2.5.1, LOINC, SNOMED, etc. ****total cost includes hardware, software, installation, and training Note: a dash in lieu of an answer means company did not answer question or question is not applicable</p>			

Laboratory information systems

Part 7 of 11	McKesson Joseph R. Stabile joseph.stabile@mckesson.com 5995 Windward Parkway Alpharetta, GA 30005 404-338-4363 www.mckesson.com/laboratory	Medical Information Technology Paul Berthiaume pberthiaume@meditech.com Meditech Circle Westwood, MA 02090 781-821-3000 www.meditech.com	Medical Information Technology Paul Berthiaume pberthiaume@meditech.com Meditech Circle Westwood, MA 02090 781-821-3000 www.meditech.com
See captodayonline.com/productguides for an interactive version of guide			
Name of laboratory information system	Horizon Lab	Laboratory Information System—6.0	Laboratory Information System—client/server
First ever/Most recent LIS installation (based on September 2012 survey deadline)	1972/June 2012	1970/August 2012	1970/August 2012
Last major product release or update for featured LIS	March 2012	January 2011	November 2009
Total No. of contracts for sites operating LIS	129	not tracked	not tracked
• Hospital/Independent lab contracts in U.S.	121/2	not tracked/not tracked	not tracked/not tracked
• Clinic or group practice contracts in U.S./Public health lab contracts in U.S.	3/0	not tracked/not tracked	not tracked/not tracked
• Contracts for other U.S. sites/Contracts for foreign sites	0/3 (hospitals)	not tracked/not tracked	not tracked/not tracked
• No. of these contracts that went live between August 2011–August 2012	8	not tracked	not tracked
Contracts signed but LIS not yet operational (hospitals/independent labs/other sites)	11 (11/0/0)	not tracked	not tracked
• Total No. of contracts (live and not live) signed between Aug. 2011–Aug. 2012	6	44 licenses	14 licenses
Total No. of sites operating LIS (No. of these sites outside the U.S.)	277 (3–Canada, Saudi Arabia)	138 [†] (16–Bahamas, Canada, Ireland, Puerto Rico, United Kingdom, Virgin Islands)	633 [†] (186–Bahamas, Canada, Ireland, Puerto Rico, United Kingdom, Virgin Islands)
Percentage of high-volume* sites installed/Low-volume** sites installed	85%/15%	45%/55%	58%/42%
Provide list of installed client sites to potential customers	yes (partial list)	—	—
No. of employees in entire company	44,000 (McKesson Provider Technologies 9,000)	3,830	3,830
• No. of employees dedicated to LIS development, installation, and support	80	202	202
No. of billed tests generated annually by labs using this LIS	not tracked	not tracked	not tracked
Range in No. of user workstations in sites operating LIS	10–400 (average, 35)	not tracked	not tracked
Central hardware or service type	HP, IBM, Dell	Dell, IBM, EMC, HP, BridgeHead Software, Stratus Technologies, others	Dell, IBM, EMC, HP, BridgeHead Software, Stratus Technologies, others
How central server failure is handled	system continues uninterrupted	manual intervention necessary to restore operation or system continues uninterrupted (user's option)	manual intervention necessary to restore operation or system continues uninterrupted (user's option)
Programming language(s)	Object Pascal, C, C+, Java, Perl	Meditech self-developed programming language	Meditech self-developed programming language
Operating system(s)	Windows, Red Hat Enterprise Linux	servers: MS Windows 2003, 2008 SE; clients: Windows 2000 Professional, XP, XP Tablet, Vista, 7	servers: MS Windows 2003, 2008 SE; clients: Windows 2000 Professional, XP, XP Tablet, Vista, 7
Databases and tools	Oracle, Linux	Meditech Database Management System	Meditech Database Management System
System includes full transaction logging	yes	no	no
Languages (other than English) offered on system	none	Spanish in development	Spanish in development
Features/modules (listed as percent of live installs or based on availability)			
• Chemistry and hematology/Bar-coded collection labels	installed/installed	100%/100%	100%/100%
• Microbiology/Public health microbiology	installed/installed	100%/installed	100%/installed
• Blood bank donor and transfusion	installed (transfusion only; donor through Horizon Blood Bank)	installed	installed
• Surgical pathology/Cytology	through NovoPath AP/through NovoPath AP	installed/installed	installed/installed
• Molecular pathology	through NovoPath AP	not available	not available
• Cytogenetics/Flow cytometry	through NovoPath AP/through NovoPath AP	not available/not available	not available/not available
• HIS or EMR interface for admissions/discharge/transfer (ADT)	installed	installed	installed
• HIS or EMR interface for order entry/Results reporting	installed/installed	installed/installed	installed/installed
• HIS or EMR interface for packaging results into PDF format	not available	installed	installed
• HIS or EMR interface for packaging results into CDA1 format/CDA2 format	not available/not available	not available/not available	not available/not available
• Ad hoc reporting/Rules-based system	installed/installed	100%/100%	100%/100%
• Management and/or statistical reporting	installed	100%	100%
• Outreach and/or commercial laboratory	through Horizon OutReach for Lab	installed	installed
• Compliance checking/Billing and accounts receivable	installed/through Horizon Lab Financials	installed/installed	installed/installed
• Materials management and inventory	not available	installed	installed
• Test partition/Remote faxing and printing	installed/installed	100%/100%	100%/100%
• HIPAA-standard transaction formats	installed	100%	100%
• Web-based remote inquiry of reports/Web access for order entry	through Horizon OutReach for Lab (for both features)	installed/installed	installed/installed
• Specimen management and tracking	installed	100%	100%
• Compliance and quality assurance tools/Environmental health	installed/installed	installed/installed	installed/installed
System available via ASP or cloud-based data center	yes	no	no
LIS can report lab data that is focus of meaningful use guidelines to public health agencies via automated electronic transmission using formats*** for:			
• Microbiology data (culture and sensitivity)	yes	yes	yes
• Other reportable diseases (blood, lead, immunology, etc.)	yes	yes	yes
• Tumor diagnosis or registry data (using NAACCR Pathology Laboratory Electronic Reporting, vol. V, version 4.0, April 2011 edition)	no	yes	yes
Other lab vendors' systems to which software has an interface	Sunquest, Cerner, Meditech, Quest Diagnostics, others	Cerner, Siemens, McKesson, others	Cerner, Siemens, McKesson, others
Total laboratory automation systems to which LIS can interface	Siemens, Roche Diagnostics, Beckman Coulter, others—all via Data Innovations	Beckman Coulter, Siemens, Roche Diagnostics, Bayer	Beckman Coulter, Siemens, Roche Diagnostics, Bayer
LIS allows third-party updates of tables and rules	yes (AMA, CMS, Regenstrief Institute, others)	yes (InfoX, SNOMED)	yes (InfoX, SNOMED)
LIS allows for image capture, display, reporting	no	yes	yes
Software provides indexed field in each test definition for LOINC code	yes	yes	yes
Provide LOINC dictionary for each new installation	no	no	no
LIS supports use of SNOMED CT	no	yes	yes
Market modules for other hospital departments (percent of installs lab only)	yes (50%)	yes	yes
No. of different types of lab instruments interfaced and operational with LIS	500+ (via Data Innovations interface)	1,000+ (via Meditech interface)	1,000+ (via Meditech interface)
Percentage of LIS clients that use positive patient ID systems to identify patients and blood specimens at bedside	40% (100% of total use McKesson's PPID software)	not tracked	not tracked
Source code/User group that meets regularly	escrow/yes (meets in person only)	escrow/yes (meets via Webinar and in person)	escrow/yes (meets via Webinar and in person)
Methods by which users can tailor LIS in their own setting	ad hoc query tools, dictionary settings	ad hoc query tools, user-defined interfaces, dictionary settings, customer-defined screens, desktop preferences, rules-based logic	ad hoc query tools, user-defined interfaces, dictionary settings, customer-defined screens, desktop preferences, rules-based logic
Total cost for smallest LIS installation****	—	—	—
Total cost for largest LIS installation****	—	—	—
Distinguishing features (supplied by company)	<ul style="list-style-type: none"> current release ONC-ATCB certified as a module EHR for meaningful use stage one outstanding support organization substantially decreased total cost of ownership with availability of Linux platform 	<ul style="list-style-type: none"> tightly integrated with company's clinical, administrative, and financial applications flexibility to serve a wide range of organizations, from small community labs to multi-site university labs and large integrated delivery networks instantly and automatically generates clinical alerts, pushing them out to notify providers of critical laboratory results 	<ul style="list-style-type: none"> tightly integrated with company's clinical, administrative, and financial applications lab managers have access to a variety of management reports to aid them in decisionmaking instantly and automatically generates clinical alerts, pushing them out to notify providers of critical laboratory results
*generate >500,000 billed tests annually, or >200 bed hospitals, or >500 requisitions per day			
**generate <500,000 billed tests annually, or <200 bed hospitals, or <500 requisitions per day			
***HL7 2.5.1, LOINC, SNOMED, etc.			
****total cost includes hardware, software, installation, and training			
Note: a dash in lieu of an answer means company did not answer question or question is not applicable		[†] for lab only; other sites also installed	[†] for lab only; other sites also installed

Laboratory information systems

Part 8 of 11	Medical Information Technology Paul Berthiaume pberthiaume@meditech.com Meditech Circle Westwood, MA 02090 781-821-3000 www.meditech.com	Netlims Gerald Choder gchoder@yahoo.com 300 Frank W. Burr Blvd. Teaneck, NJ 07666 201-894-5300 www.netlims.com	Orchard Software Kerry Foster kfoster@orchardsoft.com 701 Congressional Blvd., Suite 360 Carmel, IN 46032 800-856-1948 www.orchardsoft.com
See captodayonline.com/productguides for an interactive version of guide			
Name of laboratory information system	Laboratory Information System—Magic	AutoLIMS	Orchard Harvest LIS
First ever/Most recent LIS installation (based on September 2012 survey deadline)	1970/July 2012	1996/June 2012	1993/September 2012
Last major product release or update for featured LIS	January 2012	March 2012	March 2012
Total No. of contracts for sites operating LIS	not tracked	16	1,246
• Hospital/Independent lab contracts in U.S.	not tracked/not tracked	1/9	241/180
• Clinic or group practice contracts in U.S./Public health lab contracts in U.S.	not tracked/not tracked	0/0	724/18
• Contracts for other U.S. sites/Contracts for foreign sites	not tracked/not tracked	0/6 (laboratories)	83 (universities, student health centers, others)/0
• No. of these contracts that went live between August 2011–August 2012	not tracked	2	103
Contracts signed but LIS not yet operational (hospitals/independent labs/other sites)	not tracked	2 (0/2/0)	64 (11/24/29—clinics, POs, student health labs)
• Total No. of contracts (live and not live) signed between Aug. 2011–Aug. 2012	3 licenses	—	101
Total No. of sites operating LIS (No. of these sites outside the U.S.)	825 [†] (96—Bahamas, Canada, Ireland, Puerto Rico, United Kingdom, Virgin Islands)	47 (35—Israel, India)	1,386 (0)
Percentage of high-volume* sites installed/Low-volume** sites installed	44%/56%	95%/5%	40%/60%
Provide list of installed client sites to potential customers	—	yes (complete list)	yes (partial list)
No. of employees in entire company	3,830	125	185
• No. of employees dedicated to LIS development, installation, and support	202	80	139
No. of billed tests generated annually by labs using this LIS	not tracked	400,000–10,000,000 (mean, 2,000,000)	5,000–4,000,000 (mean, 500,000)
Range in No. of user workstations in sites operating LIS	not tracked	19–600 (average, 60)	1–500 (average, 30)
Central hardware or service type	Dell, IBM, EMC, HP, BridgeHead Software, Stratus Technologies, others	IBM, Dell, HP, any compatible	HP Business Class
How central server failure is handled	manual intervention necessary to restore operation or system continues uninterrupted (user's option)	manual intervention necessary to restore operation or system continues uninterrupted (user's option)	manual intervention necessary to restore operation or system continues uninterrupted (user's option)
Programming language(s)	Meditech self-developed programming language	C++, Adobe	4D, C++, Java, HTML
Operating system(s)	Windows 2003 platform, Windows Server 2008 Standard Edition	Windows server 2008, 2003, Windows XP	Windows XP Professional, Vista, Server 2003 Standard Edition, Windows 7
Databases and tools	Meditech Database Management System	Oracle, Microsoft SQL server 2008, 2005	4D, SQL
System includes full transaction logging	no	yes	yes
Languages (other than English) offered on system	Spanish in development	Hebrew	none
Features/modules (listed as percent of live installs or based on availability)			
• Chemistry and hematology/Bar-coded collection labels	100%/100%	95%/100%	100%/100%
• Microbiology/Public health microbiology	100%/installed	85%/25%	25%/1%
• Blood bank donor and transfusion	installed	30%	not available
• Surgical pathology/Cytology	installed/installed	30%/40%	10%/10%
• Molecular pathology	not available	40%	5%
• Cytogenetics/Flow cytometry	not available/not available	40%/30%	2%/5%
• HIS or EMR interface for admissions/discharge/transfer (ADT)	installed	75%	90%
• HIS or EMR interface for order entry/Results reporting	installed/installed	65%/65%	60%/65%
• HIS or EMR interface for packaging results into PDF format	installed	5%	15%
• HIS or EMR interface for packaging results into CDA1 format/CDA2 format	not available/not available	available but not installed/available but not installed	not available/not available
• Ad hoc reporting/Rules-based system	100%/100%	100%/100%	100%/100%
• Management and/or statistical reporting	100%	100%	100%
• Outreach and/or commercial laboratory	installed	100%	35%
• Compliance checking/Billing and accounts receivable	installed/installed	50%/50%	100%/not available
• Materials management and inventory	installed	available but not installed	installed
• Test partition/Remote faxing and printing	100%/100%	100%/100%	35%/100%
• HIPAA-standard transaction formats	100%	100%	100%
• Web-based remote inquiry of reports/Web access for order entry	installed/installed	50%/50%	65%/60%
• Specimen management and tracking	100%	60%	installed
• Compliance and quality assurance tools/Environmental health	installed/installed	70%/50%	100%/installed
System available via ASP or cloud-based data center	no	—	no
LIS can report lab data that is focus of meaningful use guidelines to public health agencies via automated electronic transmission using formats*** for:			
• Microbiology data (culture and sensitivity)	yes	yes	yes
• Other reportable diseases (blood, lead, immunology, etc.)	yes	yes	yes
• Tumor diagnosis or registry data (using NAACCR Pathology Laboratory Electronic Reporting, vol. V, version 4.0, April 2011 edition)	yes	yes	yes
Other lab vendors' systems to which software has an interface	Cerner, Siemens, McKesson, others	Allscripts, GE Healthcare, SCC Soft Computer, Siemens, Sunquest, Orchard, self-developed	Allscripts, NextGen, GE Healthcare, Telcor, Medisoft, Aprima, Computer Programs and Systems, NetSolutions, Meditech, QuadraMed, others
Total laboratory automation systems to which LIS can interface	Beckman Coulter, Siemens, Roche Diagnostics, Bayer	Beckman Coulter, Siemens, Ortho-Clinical Diagnostics, Olympus America, Roche Diagnostics, Abbott Diagnostics, Bayer, Sysmex	Beckman Coulter, Siemens, Ortho-Clinical Diagnostics, Olympus America, Roche Diagnostics
LIS allows third-party updates of tables and rules	yes (InfoX, SNOMED)	yes (InfoX, AMA, SNOMED, CodeMap, others)	no
LIS allows for image capture, display, reporting	yes	yes	yes
Software provides indexed field in each test definition for LOINC code	yes	yes	yes
Provide LOINC dictionary for each new installation	no	no	no
LIS supports use of SNOMED CT	yes	yes	yes
Market modules for other hospital departments (percent of installs lab only)	yes	no	no
No. of different types of lab instruments interfaced and operational with LIS	1,000+ (via Meditech interface)	300+ (via Netlims interface)	400+ (via Orchard interface)
Percentage of LIS clients that use positive patient ID systems to identify patients and blood specimens at bedside	not tracked	50% (75% of total use Netlims' PPID system/ 25% of total use third-party PPID system)	1% (100% of total use third-party PPID software)
Source code/User group that meets regularly	escrow/yes (meets via Webinar and in person)	escrow/yes (meets via Webinar and in person)	escrow/yes (meets via Webinar and in person)
Methods by which users can tailor LIS in their own setting	ad hoc query tools, user-defined interfaces, dictionary settings, customer-defined screens, desktop preferences, rules-based logic	user programming, ad hoc query tools, user-defined interfaces, dictionary settings	user programming, ad hoc query tools, dictionary settings, custom programming
Total cost for smallest LIS installation****	—	\$110,000 (annual maintenance fee, \$10,000)	\$32,000 (annual maintenance fee, \$4,000)
Total cost for largest LIS installation****	—	\$3,500,000 (annual maintenance fee, \$500,000)	\$1,400,000 (annual maintenance fee, \$168,000)
Distinguishing features (supplied by company)	<ul style="list-style-type: none"> tightly integrated with company's clinical, administrative, and financial applications flexibility to serve a wide range of organizations, from small community labs to multi-site university labs and large integrated delivery networks instantly and automatically generates clinical alerts, pushing them out to notify providers of critical laboratory results 	<ul style="list-style-type: none"> Windows system with Web, HTML, choice of database, and hardware customizable—tailored for any environment and work procedure integrated applications—all lab disciplines and billing in one database 	<ul style="list-style-type: none"> expert interfacing and integration capabilities with instruments, EMR systems, other host systems, departments, reference labs robust rules-based decision support logic and data-mining technology for data analytics industry leader in product development, training, service, and support
*generate >500,000 billed tests annually, or >200 bed hospitals, or >500 requisitions per day			
**generate <500,000 billed tests annually, or <200 bed hospitals, or <500 requisitions per day			
***HL7 2.5.1, LOINC, SNOMED, etc.			
****total cost includes hardware, software, installation, and training			
Note: a dash in lieu of an answer means company did not answer question or question is not applicable			
		[†] for lab only; other sites also installed	

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Laboratory information systems

Part 9 of 11	Psyche Systems Lisa-Jean Clifford lj@psychesystems.com 25 Birch St., Suite 200, Bldg. B Milford, MA 01757 508-473-1500 www.psychesystems.com	Quality Software Systems Jeff Caspari jcaspari@labhealth.com 252 Old Nyack Turnpike Spring Valley, NY 10977 845-352-4313 ext.14 www.labhealth.com	SCC Soft Computer Ellie Vahman ellie@softcomputer.com 5400 Tech Data Drive Clearwater, FL 33760 727-789-0100 www.softcomputer.com
See captodayonline.com/productguides for an interactive version of guide			
Name of laboratory information system	WindoPath (formerly LabWeb)	LabHealth	SoftLab
First ever/Most recent LIS installation (based on September 2012 survey deadline)	1976/August 2012	1984/2012	1985/August 2012
Last major product release or update for featured LIS	2012	2012	February 2012
Total No. of contracts for sites operating LIS	28	34	346
• Hospital/Independent lab contracts in U.S.	23/3	1/26	276/26
• Clinic or group practice contracts in U.S./Public health lab contracts in U.S.	0/2	7/0	9/3
• Contracts for other U.S. sites/Contracts for foreign sites	0/0	0/0	0/32 (university based, hospitals, regional health authorities)
• No. of these contracts that went live between August 2011–August 2012	1	2	11
Contracts signed but LIS not yet operational (hospitals/independent labs/other sites)	8 (8/0/0)	—	19 (16/3/0)
• Total No. of contracts (live and not live) signed between Aug. 2011–Aug. 2012	8	2	8
Total No. of sites operating LIS (No. of these sites outside the U.S.)	23 (0)	34 (0)	843 (100–Canada, Brazil, Jamaica, Switzerland)
Percentage of high-volume* sites installed/Low-volume** sites installed	75%/25%	70%/30%	60%/40%
Provide list of installed client sites to potential customers	no (confidential)	—	yes (partial list)
No. of employees in entire company	43	7	1,540
• No. of employees dedicated to LIS development, installation, and support	35	6	1,495
No. of billed tests generated annually by labs using this LIS	—	50,000–5,000,000 (mean, 250,000)	150,000–20,000,000+ (mean, 1,000,000)
Range in No. of user workstations in sites operating LIS	1–120 (average, 20)	4–95	10–4,000+ (average, 80)
Central hardware or service type	HP, Pentium compatible, ASP	Dell	IBM System p (AIX/Unix)
How central server failure is handled	manual intervention necessary to restore operation or system continues uninterrupted (user's option)	—	system continues uninterrupted
Programming language(s)	Visual Basic .Net	Visual Basic .Net	C, C++, Java, .Net
Operating system(s)	Windows	Windows	AIX (Unix), Windows
Databases and tools	Microsoft SQL server, Hyperion Interactive Reporting, RightFax	SQL	Oracle, Tomcat, OAS, WebLogic, JBoss, ServiceMix
System includes full transaction logging	yes	—	yes
Languages (other than English) offered on system	—	—	French, ABN forms available in Spanish
Features/modules (listed as percent of live installs or based on availability)			
• Chemistry and hematology/Bar-coded collection labels	100%/100%	100%/90%	100%/100%
• Microbiology/Public health microbiology	80%/1%	50%/25%	90%/6%
• Blood bank donor and transfusion	25%	not available	60%
• Surgical pathology/Cytology	15%/0	available but not installed/20%	47%/47%
• Molecular pathology	0	not available	10%
• Cytogenetics/Flow cytometry	0/0	not available/not available	5%/15%
• HIS or EMR interface for admissions/discharge/transfer (ADT)	90%	30%	99%
• HIS or EMR interface for order entry/Results reporting	75%/75%	30%/30%	85%/88%
• HIS or EMR interface for packaging results into PDF format	30%	not available	10%
• HIS or EMR interface for packaging results into CDA1 format/CDA2 format	25%/not available	not available/not available	not available/not available
• Ad hoc reporting/Rules-based system	100%/100%	100%/100%	100%/100%
• Management and/or statistical reporting	100%	100%	100%
• Outreach and/or commercial laboratory	40%	100%	100%
• Compliance checking/Billing and accounts receivable	20%/not available	100%/100%	30%/30%
• Materials management and inventory	available but not installed	100%	installed
• Test partition/Remote faxing and printing	100%/100%	100%/100%	100%/100%
• HIPAA-standard transaction formats	100%	100%	100%
• Web-based remote inquiry of reports/Web access for order entry	45%/40%	100%/100%	15%/15%
• Specimen management and tracking	installed	100%	100%
• Compliance and quality assurance tools/Environmental health	installed/not available	80%/not available	100%/not available
System available via ASP or cloud-based data center	yes	yes	yes
LIS can report lab data that is focus of meaningful use guidelines to public health agencies via automated electronic transmission using formats*** for:			
• Microbiology data (culture and sensitivity)	yes	yes	yes
• Other reportable diseases (blood, lead, immunology, etc.)	yes	yes	yes
• Tumor diagnosis or registry data (using NAACCR Pathology Laboratory Electronic Reporting, vol. V, version 4.0, April 2011 edition)	yes	under development	yes
Other lab vendors' systems to which software has an interface	McKesson, Meditech, Siemens, Allscripts, QuadraMed, Keane, Seacoast, others	Cerner, Allscripts, others	4medica, Medware, NextGen, McKesson, Sunquest, Allscripts, Cerner, Healthland, others
Total laboratory automation systems to which LIS can interface	Beckman Coulter, Siemens, Ortho-Clinical Diagnostics, Olympus America, Roche Diagnostics, Abbott Diagnostics, others	available but not yet operational to Beckman Coulter, Siemens, Ortho-Clinical Diagnostics, Olympus America, Roche Diagnostics, Abbott Diagnostics	Beckman Coulter, Siemens, Ortho-Clinical Diagnostics, Labotix Automation, PVT LabSystems, Olympus America, Roche Diagnostics, Abbott Diagnostics, others
LIS allows third-party updates of tables and rules	yes (CodeMap)	no	yes (Allscripts, Epic, IntraNexus, LOINC, Microscan, QuadraMed, ICD 9/10 codes, others)
LIS allows for image capture, display, reporting	no	yes	yes
Software provides indexed field in each test definition for LOINC code	yes	yes	yes
Provide LOINC dictionary for each new installation	no	yes	yes
LIS supports use of SNOMED CT	—	yes	yes
Market modules for other hospital departments (percent of installs lab only)	—	no	yes (99%)
No. of different types of lab instruments interfaced and operational with LIS	400+ (via Psyche and Dawning interfaces)	92 (via Quality Software Systems interface)	400+ (via SCC interface)
Percentage of LIS clients that use positive patient ID systems to identify patients and blood specimens at bedside	0	25% (50% of total use Quality Software Systems' PPID system/50% use third-party PPID system)	23% (91% of total use SCC's PPID system/9% of total use third-party PPID system)
Source code/User group that meets regularly	escrow/yes (meets via Webinar and in person)	yes/no	escrow/yes (meets via Webinar and in person)
Methods by which users can tailor LIS in their own setting	ad hoc query tools, dictionary settings	user programming, ad hoc query tools, dictionary settings	ad hoc query tools, dictionary settings, highly configurable rules engine
Total cost for smallest LIS installation****	\$24,000 (annual maintenance fee, \$500)	\$20,000 (annual maintenance fee, \$6,000)	\$120,000 (annual maintenance fee, \$1,800)
Total cost for largest LIS installation****	\$15,000,000 (annual maintenance fee, \$118,000)	\$85,000 (annual maintenance fee, \$25,000)	\$20,000,000 (annual maintenance fee, \$2,000,000)
Distinguishing features (supplied by company)	<ul style="list-style-type: none"> fully cloud-based hosted deployment option for Web outreach, EMR integration, LIS unique, advanced mapping tools for deployment of EMR/PMS order and result interfaces surgical pathology, cytopathology, molecular pathology, clinical pathology in a single system 	<ul style="list-style-type: none"> LIS completely rewritten in 2011 using the most up-to-date browser-based technology ability of company to create custom programming quickly and inexpensively consulting services to help client labs generate new income 	<ul style="list-style-type: none"> innovative, workflow-based, integrated suite of genetics modules for molecular, cytogenetics, HLA/immunogenetics, biochemistry, more powerful set of integrated laboratory-specific outreach tools, including Web-based lab orders and results, more core lab multi-site and specimen-tracking module
*generate >500,000 billed tests annually, or >200 bed hospitals, or >500 requisitions per day			
**generate <500,000 billed tests annually, or <200 bed hospitals, or <500 requisitions per day			
***HL7 2.5.1, LOINC, SNOMED, etc.			
****total cost includes hardware, software, installation, and training			
Note: a dash in lieu of an answer means company did not answer question or question is not applicable			

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Laboratory information systems

Part 10 of 11	Schuyler House Janet Chennault jlc@schuylerhouse.com 27821 Fremont Court, Suite 8 Valencia, CA 91355 800-706-0266 www.schuylerhouse.com	Siemens Medical Solutions USA Theresa McGillvray-Dodd theresa.mcgillvray-dodd@siemens.com 51 Valley Stream Parkway, Malvern, PA 19355-1406 425-487-0179 www.usa.siemens.com/medical	STARLIMS Nancy Rourke nancy.rourke@starlims.com 4000 Hollywood Blvd., Suite 333 South Hollywood, FL 33021 954-964-8663 www.starlims.com/?subj=CAP
See captodayonline.com/productguides for an interactive version of guide			
Name of laboratory information system	SchuyLab	Novius Lab	STARLIMS Clinical LIMS
First ever/Most recent LIS installation (based on September 2012 survey deadline)	1994/August 2012	1983/June 2012	2001/August 2012
Last major product release or update for featured LIS	August 2012	May 2012	August 2011
Total No. of contracts for sites operating LIS	824	49	92
• Hospital/Independent lab contracts in U.S.	121/262	46/1	1/17
• Clinic or group practice contracts in U.S./Public health lab contracts in U.S.	364/0	0/1	0/26
• Contracts for other U.S. sites/Contracts for foreign sites	45 (veterinary, vendor, schools)/32 (hospitals, physician office labs, reference labs)	0/1	14 (plasma testing, biotech immunology lab, biobank, biomarker research)/34 (hospitals, reference labs, biobanks, others)
• No. of these contracts that went live between August 2011–August 2012	38	1	13
Contracts signed but LIS not yet operational (hospitals/independent labs/other sites)	0	6 (6/0/0)	39 (5/15/19—blood services, public health, biobanks, others)
• Total No. of contracts (live and not live) signed between Aug. 2011–Aug. 2012	38	5	16
Total No. of sites operating LIS (No. of these sites outside the U.S.)	824 (104–Guam, Caribbean, Canada, Africa, Pacific Rim, South East Asia)	100 (1–Canada)	133 (42–U.K., Germany, Romania, China, Russia, Jamaica, Malaysia, India, Japan, others)
Percentage of high-volume* sites installed/Low-volume** sites installed	30%/70%	45%/55%	33%/67%
Provide list of installed client sites to potential customers	no (confidential)	no (confidential)	yes (partial list)
No. of employees in entire company	26	400,000+	379
• No. of employees dedicated to LIS development, installation, and support	20	proprietary	120
No. of billed tests generated annually by labs using this LIS	5,000–7,000,000 (mean, 10,000)	80,000–3,000,000 (mean, 650,000)	5,000–100,000,000
Range in No. of user workstations in sites operating LIS	1–64 (average, 3)	6–75 (average, 20)	3–1,500
Central hardware or service type	PC (Dell recommended)	IBM xSeries, HP ProLiant, Dell	hardware independent—Sun, Unix, Linux (DB server only), Windows (application server), IBM, HP
How central server failure is handled	manual intervention necessary to restore operation	manual intervention necessary to restore operation	manual intervention necessary to restore operation or system continues uninterrupted (user's option)
Programming language(s)	C	C++	C#, .Net
Operating system(s)	Windows XP, Vista, 7, 8	Linux	Windows 2000 and above
Databases and tools	Pervasive, Btrieve	Sybase	SQL server 2005, 2008, Oracle 10G, 11G
System includes full transaction logging	no	yes	yes
Languages (other than English) offered on system	ABN forms available in Spanish, others	none	French, Spanish, Chinese, Czech, Polish, Russian, Dutch, Korean, Japanese, Italian, Hebrew, others
Features/modules (listed as percent of live installs or based on availability)			
• Chemistry and hematology/Bar-coded collection labels	100%/55%	100%/100%	50%/95%
• Microbiology/Public health microbiology	70%/1% (via WHONET)	98%/5%	12%/40%
• Blood bank donor and transfusion	not available	installed	2%
• Surgical pathology/Cytology	10%/15%	installed/installed	2%/5%
• Molecular pathology	not available	installed	32%
• Cytogenetics/Flow cytometry	not available/1%	installed/installed	8%/6%
• HIS or EMR interface for admissions/discharge/transfer (ADT)	40%	95%	5%
• HIS or EMR interface for order entry/Results reporting	50%/45%	95%/95%	9%/9%
• HIS or EMR interface for packaging results into PDF format	35%	not available	available but not installed
• HIS or EMR interface for packaging results into CDA1 format/CDA2 format	not available/not available	not available/not available	available but not installed/available but not installed
• Ad hoc reporting/Rules-based system	100%/installed	100%/100%	95%/90%
• Management and/or statistical reporting	100%	100%	95%
• Outreach and/or commercial laboratory	30%	installed	14%
• Compliance checking/Billing and accounts receivable	40%/30%	installed/installed	3%/38%
• Materials management and inventory	not available	not available	85%
• Test partition/Remote faxing and printing	not available/40%	100%/98%	90%/15%
• HIPAA-standard transaction formats	100%	installed	available but not installed
• Web-based remote inquiry of reports/Web access for order entry	30%/40%	not available/not available	80%/30%
• Specimen management and tracking	not available	installed	95%
• Compliance and quality assurance tools/Environmental health	not available/not available	installed/installed	80%/17%
System available via ASP or cloud-based data center	no	no	optional
LIS can report lab data that is focus of meaningful use guidelines to public health agencies via automated electronic transmission using formats*** for:			
• Microbiology data (culture and sensitivity)	yes	yes	yes
• Other reportable diseases (blood, lead, immunology, etc.)	yes	yes	yes
• Tumor diagnosis or registry data (using NAACCR Pathology Laboratory Electronic Reporting, vol. V, version 4.0, April 2011 edition)	no	no	yes
Other lab vendors' systems to which software has an interface	Allscripts, Healthland, eClinicalWorks, e-MDs, GE Healthcare, Greenway, McKesson, Medical Manager, MedInformatix, others	McKesson, Epic	Orchard, NetSuite, Haemonetics, Mak-System, others
Total laboratory automation systems to which LIS can interface	Roche Diagnostics, Bayer	Beckman Coulter, Siemens, Roche Diagnostics, Tecan	Beckman Coulter, Siemens, Ortho-Clinical Diagnostics, Labotix Automation, PVT LabSystems, Olympus America, Roche Diagnostics, others
LIS allows third-party updates of tables and rules	yes (CodeMap, others)	no	yes
LIS allows for image capture, display, reporting	yes	no	yes
Software provides indexed field in each test definition for LOINC code	yes	yes	yes
Provide LOINC dictionary for each new installation	no	no	no
LIS supports use of SNOMED CT	no	no	yes
Market modules for other hospital departments (percent of installs lab only)	yes (90%)	yes (10%)	no
No. of different types of lab instruments interfaced and operational with LIS	304 (via Schuyler House interface)	300 (via Siemens or Data Innovations interface)	275+ (via STARLIMS or Data Innovations interface)
Percentage of LIS clients that use positive patient ID systems to identify patients and blood specimens at bedside	0 (PPID system interface capability available)	20% (90% of total use Siemens' PPID system/10% of total use third-party PPID system)	0
Source code/User group that meets regularly	escrow/yes (meets in person only)	no/yes (meets via Webinar and in person)	escrow/yes (meets in person only)
Methods by which users can tailor LIS in their own setting	user-defined interfaces, others	ad hoc query tools, user-defined interfaces, dictionary settings	user programming, ad hoc query tools, user-defined interfaces, dictionary settings, others
Total cost for smallest LIS installation****	free (annual maintenance fee optional)	—	\$75,000 (annual maintenance fee, \$8,000)
Total cost for largest LIS installation****	\$87,000 (annual maintenance fee, \$4,500)	—	\$3,500,000 (annual maintenance fee, \$275,000)
Distinguishing features (supplied by company)	<ul style="list-style-type: none"> free SchuyLab Basic, a streamlined version of SchuyLab LIS, with modules that can be upgraded so lab's LIS can grow with lab easy-to-use, comprehensive LIS, including electronic billing integrates lab results with other systems 	<ul style="list-style-type: none"> turnaround time alerts; paperless operations; rules-based automation and knowledge; critical call management; document links six-month implementation cycle times proven performance and reliability; ranked No. 1 in KLAS LIS ranking for 2008, 2009, 2010, 2011 	<ul style="list-style-type: none"> powerful customer-configurable workflow tools user-intuitive dashboard provides personalized "at-a-glance" view to key performance metrics and pending tasks via a Web browser interface integrated LIS capabilities with LIMS, QC management, comprehensive instrument interfacing, more
*generate >500,000 billed tests annually, or >200 bed hospitals, or >500 requisitions per day			
**generate <500,000 billed tests annually, or <200 bed hospitals, or <500 requisitions per day			
***HL7 2.5.1, LOINC, SNOMED, etc.			
****total cost includes hardware, software, installation, and training			
Note: a dash in lieu of an answer means company did not answer question or question is not applicable			

Tabulation does not represent an endorsement by the College of American Pathologists.

Laboratory information systems

Part 11 of 11	Sunquest Information Systems Auna Emery auna.emery@sunquestinfo.com 250 S. Williams Blvd. Tucson, AZ 85711 520-570-2000 www.sunquestinfo.com	Technidata America Alain Michotte alain.michotte@technidata-web.com 5146 E. Holmes St. Tucson, AZ 85711 520-777-3556 www.technidata-web.com
See captodayonline.com/productguides for an interactive version of guide		
Name of laboratory information system	Sunquest Laboratory	TD-Synergy
First ever/Most recent LIS installation (based on September 2012 survey deadline)	1979/July 2012	1972/July 2012
Last major product release or update for featured LIS	March 2012	May 2012
Total No. of contracts for sites operating LIS	400+	780+
• Hospital/Independent lab contracts in U.S.	350+/40+	8/1
• Clinic or group practice contracts in U.S./Public health lab contracts in U.S.	—†	2/1
• Contracts for other U.S. sites/Contracts for foreign sites	—/20+ (hospitals, research labs)	1 (research laboratory)/770+ (hospitals, reference labs, clinics, blood centers, biobanks, others)
• No. of these contracts that went live between August 2011–August 2012	20	10+
Contracts signed but LIS not yet operational (hospitals/independent labs/other sites)	22 (22/0/0)	8 (6/0/2—clinics)
• Total No. of contracts (live and not live) signed between Aug. 2011–Aug. 2012	22	10
Total No. of sites operating LIS (No. of these sites outside the U.S.)	1,000+ (60+—Canada, U.K., Western Europe, Middle East)	780+ (770+—Canada, France, Italy, Spain, U.K., Middle East, Asia, others)
Percentage of high-volume* sites installed/Low-volume** sites installed	65%/35%	60%/40%
Provide list of installed client sites to potential customers	yes (partial list)	no (confidential)
No. of employees in entire company	630	210+
• No. of employees dedicated to LIS development, installation, and support	600+	110+
No. of billed tests generated annually by labs using this LIS	<500,000–20,000,000 (mean, 10,000,000)	140,000–20,000,000 (mean 1,000,000)
Range in No. of user workstations in sites operating LIS	4–500 (average, 300)	10–830 (average, 80)
Central hardware or service type	HP, IBM	hardware independent—Sun, IBM, HP, others
How central server failure is handled	manual intervention necessary to restore operation or system continues uninterrupted (user's option)	manual intervention necessary to restore operation or system continues uninterrupted (user's option)
Programming language(s)	Caché, Caché Script, Standard C/C++, Visual Basic, Visual C++, Active X, HTML with dynamic HTML content	C++, C+, C#, Java
Operating system(s)	AIX, HP-UX, OpenVMS, Linux, Windows XP	Solaris, AIX, HP-UX, Linux, Windows server, Windows 7
Databases and tools	InterSystems Caché	MS SQL server, Oracle
System includes full transaction logging	yes	yes
Languages (other than English) offered on system	—	French, Spanish, Dutch, Italian, others
Features/modules (listed as percent of live installs or based on availability)		
• Chemistry and hematology/Bar-coded collection labels	100%/100%	99%/100%
• Microbiology/Public health microbiology	100%/installed	85%/installed
• Blood bank donor and transfusion	80%	20% (foreign sites; not marketed in the U.S.)
• Surgical pathology/Cytology	70%/50%	40%/35%
• Molecular pathology	installed	5%
• Cytogenetics/Flow cytometry	installed/installed	5%/5%
• HIS or EMR interface for admissions/discharge/transfer (ADT)	99%	90%
• HIS or EMR interface for order entry/Results reporting	99%/99%	25%/85%
• HIS or EMR interface for packaging results into PDF format	installed	20%
• HIS or EMR interface for packaging results into CDA1 format/CDA2 format	not available/not available	available but not installed/available but not installed
• Ad hoc reporting/Rules-based system	90%/100%	100%/100%
• Management and/or statistical reporting	100%	100%
• Outreach and/or commercial laboratory	75%	55%
• Compliance checking/Billing and accounts receivable	30%/10%	10%/55%
• Materials management and inventory	available in July 2013	3%
• Test partition/Remote faxing and printing	100%/90%	100%/100%
• HIPAA-standard transaction formats	100%	100%
• Web-based remote inquiry of reports/Web access for order entry	installed/installed	40%/35%
• Specimen management and tracking	100%	25%
• Compliance and quality assurance tools/Environmental health	100%/installed	100%/available but not installed
System available via ASP or cloud-based data center	no	no
LIS can report lab data that is focus of meaningful use guidelines to public health agencies via automated electronic transmission using formats*** for:		
• Microbiology data (culture and sensitivity)	yes	yes
• Other reportable diseases (blood, lead, immunology, etc.)	yes	yes
• Tumor diagnosis or registry data (using NAACCR Pathology Laboratory Electronic Reporting, vol. V, version 4.0, April 2011 edition)	yes	yes
Other lab vendors' systems to which software has an interface	Cerner, McKesson, Siemens, Epic, GE Healthcare, others	Cerner, McKesson, Allscripts, SCC Soft Computer, Meditech, Sunquest, Siemens, others
Total laboratory automation systems to which LIS can interface	Beckman Coulter, Siemens, Ortho-Clinical Diagnostics, Labotix Automation, Olympus America, Roche Diagnostics, Abbott Diagnostics	Siemens, Ortho-Clinical Diagnostics, Labotix Automation, Olympus America, Roche Diagnostics, Abbott Diagnostics
LIS allows third-party updates of tables and rules	yes (3M, CAP)	yes (SNOMED, 3M, CLSI)
LIS allows for image capture, display, reporting	no	yes
Software provides indexed field in each test definition for LOINC code	yes	yes
Provide LOINC dictionary for each new installation	yes	no
LIS supports use of SNOMED CT	yes	yes
Market modules for other hospital departments (percent of installs lab only)	yes (95%)	no
No. of different types of lab instruments interfaced and operational with LIS	1,300 (via Sunquest interface; middleware optional)	500+ (via Technidata America interface)
Percentage of LIS clients that use positive patient ID systems to identify patients and blood specimens at bedside	30% (100% of total use Sunquest's PPID software)	<1% (95% of total use third-party PPID software)
Source code/User group that meets regularly	escrow/yes (meets via Webinar and in person)	escrow/yes (meets via Webinar and in person)
Methods by which users can tailor LIS in their own setting	user programming, ad hoc query tools, user-defined interfaces, dictionary settings, rules, logic, dashboards	ad hoc query tools, user-defined interfaces, dictionary settings
Total cost for smallest LIS installation****	—	\$100,000 (annual maintenance fee, \$20,000)
Total cost for largest LIS installation****	—	\$5,000,000 (annual maintenance fee, \$780,000)
Distinguishing features (supplied by company)	<ul style="list-style-type: none"> delivers proven technology with less than .01% downtime real-time business intelligence dashboards and integrated outreach tools help laboratories manage and grow their business industry leader with a focus on meaningful use and advancement of pathology 	<ul style="list-style-type: none"> intuitive and robust rules-based system designed for increased user efficiency and laboratory productivity presents status-driven information in real-time and can drill down for relevant information modular, scalable architecture
*generate >500,000 billed tests annually, or >200 bed hospitals, or >500 requisitions per day		
**generate <500,000 billed tests annually, or <200 bed hospitals, or <500 requisitions per day		
***HL7 2.5.1, LOINC, SNOMED, etc.		
****total cost includes hardware, software, installation, and training		
Note: a dash in lieu of an answer means company did not answer question or question is not applicable		
	†combined with hospital/independent lab contracts in U.S.	

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